

II. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

A. LAND USE

1. Existing Setting

Overview of the Project Area

The 192-acre site is located on the outskirts of southeastern Morgan Hill along the lower slopes of the Mt. Hamilton-Diablo Range. Although entirely within the City Limits of the City of Morgan Hill, the site is almost completely surrounded by unincorporated County lands on all four sides. An aerial photograph of the project site and the surrounding area (as of 1999) is shown on Figure 4.

Existing General Plan and Zoning Designations

Most of the project site is designated *Open Space* on the City of Morgan Hill General Plan, and is zoned *Open Space*. The area surrounding the existing restaurant building (approximately five acres) is designated *Commercial* on the General Plan, and is zoned *Planned Unit Development (PUD)*. The *PUD* zoning allowed the restaurant, gift shop, and other ancillary uses supporting the restaurant to operate on the project site. A small area in the northwestern portion of the site is zoned *Floodway Combining District*. Development within a floodway such as fill, new construction, substantial improvement, and other new development is prohibited unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in the base flood elevation during the occurrence of the base flood discharge.

Existing On-site Land Uses

Nearly the entire site is developed with an 18-hole golf course. Other existing uses on the project site include a 58,946 square foot restaurant building (former Flying Lady restaurant), a 40,316-square foot maintenance building, a 4,992-square foot residence, an 1,850-square foot “milk barn”, an 8,774-square foot “hay barn”, and a former church. The existing restaurant building is vacant. The restaurant building will not be occupied and will be demolished prior to construction of new Mathematics Institute. Adjacent to the restaurant building is a 118 stall parking lot. The maintenance building is in active use for equipment and chemical storage associated with the golf course. The residence is presently occupied by a caretaker and the former church structure is currently used as an office and for meetings. No information is available on the present uses of the milk barn, hay barn, or church structures.



AERIAL PHOTOGRAPH

FIGURE 4

Surrounding Land Uses

Land uses surrounding the project site include single-family residences on large lots, open space, and agriculture. The project site is bounded to the north by residential estate and agricultural uses, to the west by a public street, agricultural and rural residential uses, to the south by a public street and rural residential uses, and to the east by residential estate, open space, and uses agricultural.

Prime Farmland

Prime Farmland is defined by the California Department of Conservation as land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. Such land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at some time during the two update cycles (approximately four years) prior to the mapping date. The project site has not been used for the production of irrigated crops since construction of the golf course started (1997). The project site is designated as “Urban and Built-up Land” on the current Santa Clara County Important Farmland Map (2000), compiled by the California Department of Conservation. During the previous mapping cycle (1998), however, approximately 57 acres of the project site was designated as Prime Farmland.

According to the most recent available data from the California Department of Conservation, Santa Clara County has 30,050 acres designated as Prime Farmland. During the most recent mapping cycle (1998-2000), a net total of 1,958 acres of Prime Farmland were converted to alternate uses. Of that amount, 1,747 acres were converted to Urban and Built-Up Land.

California Land Conservation Act (Williamson Act)

In 1965, the State legislature created the Land Conservation Act (LCA) or Williamson Act. The Land Conservation Act authorizes counties to establish agricultural preserves by entering into contracts with landowners. The stated purpose of the LCA is to maintain the agricultural economy of the State and to prevent premature and unnecessary conversion of land from agricultural uses. The LCA contract for the project site renews automatically every year on January 1st, unless a notice of non-renewal is sent by the property owner to the County 90 days before the renewal date. The renewal period is for one year. The northern 158 acres of the project site is under an LCA contract that will continue to renew indefinitely until non-renewal is filed with the County. Properties under LCA contracts are committed to agricultural or other compatible uses, and in exchange, receive property tax advantages. The LCA contract for the project site allows specific alternative uses that are compatible with agriculture (see Appendix A). None of the alternative uses allowed by the LCA contract for the project site include the construction, maintenance, or operation of a golf course.

2. Land Use Impacts

Thresholds of Significance

For the purposes of this project, a land use impact is considered significant if the project will:

- substantially adversely change the type or intensity of existing or planned land use in the area; or
- be incompatible with adjacent land uses or with the general character of the surrounding area, including density and building height; or
- conflict with established residential, recreational, educational, religious, or scientific uses of an area; or
- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use; or
- conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Land Use Compatibility

Land use conflicts can arise from two basic causes: 1) conditions on or near the project site may have impacts on persons or development introduced onto the site by the project; or 2) a new development or land use may cause impacts to persons or the physical environment in the vicinity of the project site or elsewhere. Both of these circumstances are aspects of land use compatibility. Potential incompatibility may arise from placing a particular development or land use at an inappropriate location, or from some aspect of the project's design or scope. Depending on the nature and severity of the project's impact, land use compatibility conflicts can range from minor irritations and nuisance to potentially significant effects on human health and safety. The discussion below distinguishes between potential impacts from the proposed project upon persons and the physical environment, and potential impacts from the project's surroundings upon the project itself.

Impacts From the Project

The continued operation of the existing golf course, demolition of the existing restaurant building and construction of a similar size building in its place for its use as the headquarters of the American Institute of Mathematics, and renovation of other on-site buildings as support facilities for the Mathematics Institute is generally compatible with surrounding land uses in the project area.

Although golf course development has occurred within the area on the project site zoned *Floodway Combining District*, it has been determined by a registered engineer that the encroachment will not result in any increase in the base flood elevation during the occurrence of the base flood discharge³. Therefore, it is assumed that development within

³Norman N. Hantzsch P.E., Questa Engineering Inc., Institute Golf Course Environmental Impact Report - Hydrology, Water Quality, and Water Supply Sections, October 2003.

the *Floodway Combining District* will not result in an increase of on- or off-site flooding and associated hazards to structures and persons on and adjacent to the site.

Impacts Upon the Project

Surrounding land uses are generally compatible with the proposed project. There are no known conditions adjacent the project site that may have adverse impacts on persons or activities introduced onto the site by the project.

Farmland

The project site is presently designated as *Urban and Built-up Land* on the current Santa Clara County Important Farmland Map, compiled by the California Department of Conservation Farmland Mapping Program (2000). Therefore, the proposed project will not result in the loss of designated important farmland. While the proposed golf course will add incentives for residential development in the area, the agricultural viability of the area surrounding the project site has already been limited due to small parcel sizes (one to five acres) and the mixture of estate residential and rural residential uses surrounding the project site. The project's contribution to the cumulative loss of farmland is discussed in **Section IV., Cumulative Impacts** of this EIR.

- ? **The proposed project will not result in the loss of designated farmland. (Less Than Significant Impact)**

Land Conservation Act (LCA)

Over 158 acres of the project site is under an LCA contract that will continue to renew indefinitely until non-renewal is filed with the County. Properties under LCA contract are committed to agricultural or other compatible uses and, in exchange, receive property tax advantages. The LCA contract for the project site (see Appendix A) does not allow a golf course. To achieve conformance with the LCA, the contract must be cancelled and fees paid.

- ? **Cancellation of the LCA contract and payment of appropriate fees will reduce conflicts with the State Land Conservation Act. (Less Than Significant Impact)**

Visual and Aesthetics

The project site is situated where the valley floor rises to the foothills of the Mt. Hamilton-Diablo range. The visual character of the project area is rural residential, with single-family residences on large lots. Views of the project site are mainly limited to the immediate vicinity of the project site, however, views of the golf course are available from the foothills across the valley floor (refer to Photo 1). Currently, the most noticeable aspect is the contrast of the brilliant white sand traps with the lush green fairways. Once the numerous trees planted on the golf course reach maturity, however, much of the golf course will be hidden from view. A view of the golf course taken from the eastern boundary looking west towards the City of Morgan Hill is shown in Photo 1.

Aesthetic values are largely subjective. Particular viewpoints as to what constitutes an adverse visual impact will differ among individuals. Views of the hillside from the neighbors near the project site will be obscured when the numerous trees planted along the

perimeter of the project site become established. As stated previously, the development of a golf course on the project site is consistent with the existing General Plan land use designation for the site and the project does not include any development which will significantly change or block the existing views in the project area. While trees have been densely planted on the project site, they do not obscure the skyline of a prominent hill or conflict with any relevant General Plan policies. The project, therefore, will not result in a significant visual impact.

? The visual changes resulting from the proposed project will not constitute a significant environmental impact. (Less Than Significant Impact)

Conclusion: The proposed project will not result in significant land use impacts. **(Less Than Significant Impact)**



View of the project site from the eastern boundary, looking west towards the City of Morgan Hill.

B. GEOLOGY AND SOILS

The following discussion is based in part upon a Landscape Appraisal prepared for the project site prior to the construction of the 18-hole golf course, and a Geotechnical Investigation of the soil berms along Foothill Avenue and the soil berm located along the souther edge of pond G. Both reports were prepared by *Kleinfelder, Inc.*. The Landscape Appraisal was prepared on June 20, 1995, and the Geotechnical Investigation was prepared on July 7, 2003. Copies of these reports are included as Appendix B of this EIR.

1. Existing Setting

Geology

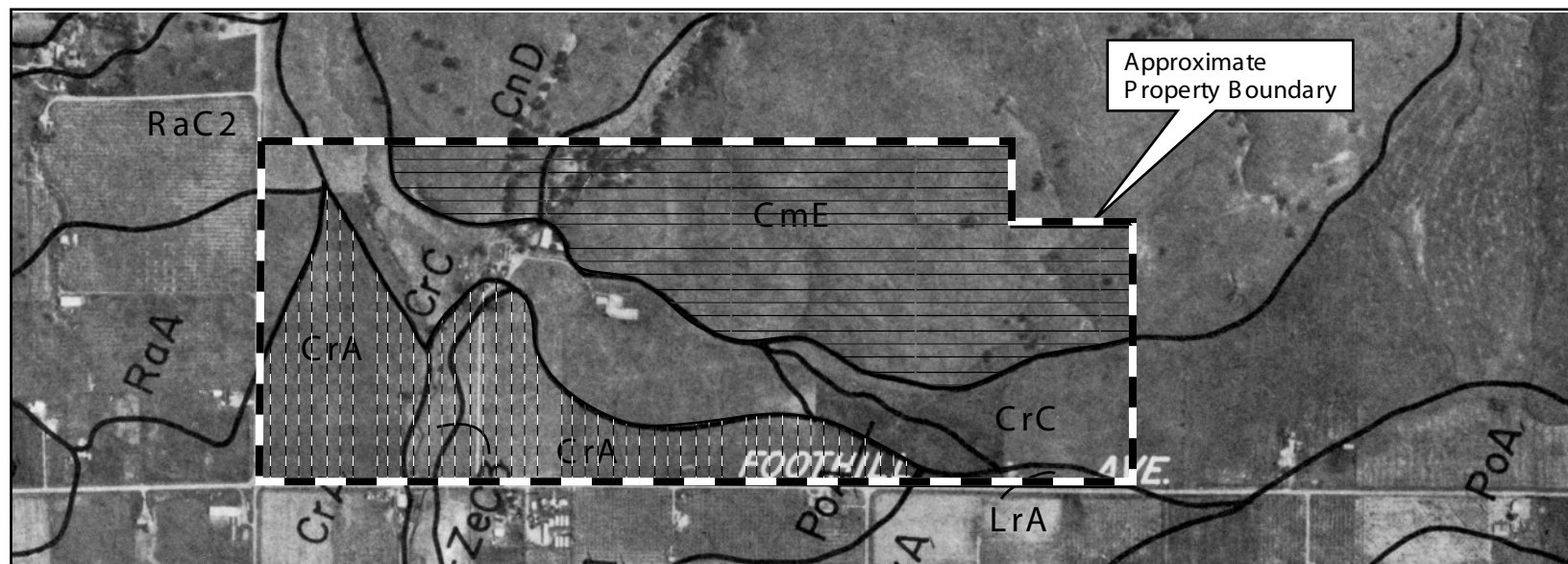
The project site is located in the Santa Clara Valley, an alluvial basin bounded by the Santa Cruz Mountain Range to the west, the Mt. Hamilton-Diablo Range to the east, and the San Francisco Bay to the north. Bedrock in this area is made up of the Franciscan Complex, a diverse group of igneous, sedimentary and metamorphic rocks of Upper Jurassic to Cretaceous age (70 to 140 million years old). These rocks are part of a northwesterly-trending belt of material that lies along the east side of the San Andreas Fault system. Overlaying the bedrock at substantial depths are marine and terrestrial sedimentary rocks of Tertiary and Quaternary age. The Santa Clara Valley was formed when sediments derived from the Santa Cruz Mountains and the Mt. Hamilton-Diablo Range were exposed by continued tectonic uplift and regression of the inland sea that had previously inundated this area.

Soils

The project site is comprised of nine different soil types, as shown on Figure 5 on the following page. Most of the project site is underlain by Cropley clay and Climara stony clay. Cropley clay is found on the flat to gentle slopes throughout the site, and is characterized by slow permeability, high water holding capacity and high fertility. The Climara stony clay is found on the steeper slopes (15-50 percent) across the site. Serpentine inclusions are found throughout the portion of the site comprised of Climara stony clay (approximately 80 acres). Due to its location on steep slopes, Climara stony clay has a moderate to high erosion potential.

Seismic Hazards

The project site is located within the seismically active San Francisco Bay region. The Uniform Building Code designates the entire South Bay as Seismic Activity Zone 4, the most seismically active zone in the United States. On the basis of current technology, as well as historical evidence, it is reasonable to assume that the project area will be subjected to the effects of at least one large to severe earthquake (magnitude 7 to 8+) in the future. The major earthquake faults in the project area are the San Andreas, Hayward and Calaveras. The San Andreas and Calaveras faults are located approximately 12 miles to the southwest and one and one-half miles northeast of the site, respectively. The Hayward fault is located approximately 26 miles northwest of the project site.



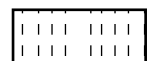
Legend

CrC - Cropley Clay, 0-9% Slopes
 CnD - Climara Clay, 90-30% Slopes
 CmE - Climara Stony Clay, 15-50% Slopes
 PoA - Pleasanton Loam, 0-2% Slopes
 LrA - Los Robles Clay Loam, 0-2% Slopes
 ZeC3 - Zamora and Cropley Soils, 2-9% Slopes,
 Severely Eroded
 CrA - Cropley Clay, 0-2% Slopes
 RaA - Rincon Clay Loam, 0-2% Slopes
 RaC2 - Rincon Clay Loam,

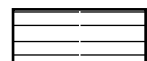


Scale: 1" = 1000'

--- Project Boundary



Hydric Component



Serpentine Inclusions

Source: H.T. Harvey & Associates
 Base: U.S. Department of Agriculture Soils Map
 County of Santa Clara, Sheet #54, 1958

Existing Grades and Structure

The 18-hole golf course was constructed without a grading permit; therefore, the grades on the site were never reviewed and approved by the City of Morgan Hill to verify the stability of the earthwork. In addition, there is no indication that a project specific geotechnical report was prepared for the existing golf course, as recommended in the Landscape Appraisal. Subsequent geotechnical analysis of the berm along Foothill Avenue and the berm along the southern edge of Pond G determined that these berms are stable. In the absence of a grading permit and a geotechnical report that addresses the entire site, it can only be assumed that the existing grades on the site, except for the berm along Foothill Avenue and the berm along the southern edge of Pond G, are potentially unstable. The existing restaurant building is also considered structurally unsound, due to the balcony collapsing in 1989.

2. Geology and Soils Impacts

Thresholds of Significance

For the purposes of this project, a geologic or seismic impact is considered significant if the project will:

- expose people or structures to substantial adverse effects including the risk of loss, injury or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic related ground failure (including liquefaction), landslides, or expansive soil; or
- expose people or property to major geologic hazards that cannot be mitigated through the use of standard engineering design and seismic safety techniques; or
- cause substantial erosion or siltation.

Geologic and Soils Hazards

The stability of the grades on the site, except the berm along Foothill Avenue and the berm along the southern edge of Pond G, are undocumented. During periods of heavy rain, landslides or lurching may occur on the steeper slopes within the project site. Such events may cause erosion and siltation.

? **The proposed project may result in substantial erosion and siltation. (Significant Impact)**

Seismic Hazards

The structural integrity of the existing restaurant building, proposed by the project to be renovated and used as the headquarters of the American Institute of Mathematics, is undetermined at this time. During a seismic event, the building may become unstable and collapse. If there are persons in or around the building, its collapse could result in serious injuries. The building is currently boarded up and is not known to be used for any purpose. It is assumed that the renovated building would utilize design and construction practices in accordance with Seismic Zone 4 building criteria. Zone 4 criteria allows buildings to resist minor earthquakes without damage and major earthquakes without collapse.

- ?
- The proposed project could result in significant seismic impacts associated with structural integrity of the existing restaurant building. (Significant Impact)**

3. Mitigation and Avoidance Measures

Mitigation Measure Proposed by the Project

The following mitigation measure is proposed by the project to reduce seismic hazards to a less than significant level:

- The existing restaurant building will not be occupied and will be demolished prior to construction of the new Mathematics Institute building.

Conclusion: In the absence of additional proposed mitigation, the potential remains for landslides or lurching to occur on the project site during periods of heavy rain, which may cause erosion and/or siltation. **(Significant Unmitigated Impact)**

The mitigation measures listed below could reduce the impacts to less than significant, if they are required as conditions of project approval by the City of Morgan Hill.

**Mitigation Measure Not Presently Incorporated
Into the Proposed Project**

The following mitigation measure is identified to reduce soils and geology impacts to a less than significant level, but has not been incorporated into the proposed project design. Should the City of Morgan Hill require the measure as condition of project approval, and if the measure is implemented by the project proponent, the impact would be less than significant.

- 1.) A geotechnical report prepared by a certified engineering geologist or civil engineer would be submitted for review and approval by the City of Morgan Hill Director of Public Works to verify the stability of the existing earthwork on the project site, except for the berm along Foothill Avenue and the berm along the southern edge Pond G. If the existing earthwork is not found to be structurally sound and capable of resisting erosion and/or collapse, the grades would be reworked in conformance with an engineered plan approved by the Director of Public Works.

C. VEGETATION AND WILDLIFE

The following discussion is based upon an analysis of vegetation and wildlife impacts from the proposed project, prepared by *H.T. Harvey & Associates*, on August 1, 2001 (revised October 7, 2003). During the completion of the report, reconnaissance level surveys of the project site were conducted by *H.T. Harvey and Associates* on July 26th, 27th and 28th of 2000 and on April 24th 2001. Additional subsequent surveys were conducted on the site by *Sycamore Associates* and *RCL Ecology* on November 27, 2002 and September 21, 2001, respectively. A copy of the report prepared by *H.T. Harvey & Associates* and the letters from *Sycamore Associates* and *RCL Ecology* are included as Appendix C of this EIR.

1. Existing Setting

The approximate 192-acre project site is part of the Coyote Valley floodplain and currently consists of a golf course, restaurant, ancillary buildings and undeveloped land. The uplands of this floodplain serve as watershed to Llagas Creek. Corralitos Creek, a tributary of Llagas Creek, flows through the project site, and eventually connects to Llagas Creek approximately two miles west of the project site.

Most of the project site belongs to the Central California Coastal Valley Resource Area, which was historically dominated by annual grasslands, marsh habitat, and woodlands, on both flood and alluvial plains. The remaining undeveloped portions of this resource area are presently used as orchards, rangeland, pasture, and oat-hay production. The average annual precipitation in this portion of the resource area is 16-20 inches and the average annual temperature is 58-60 degrees. Six existing biotic habitats were identified on the project site, including developed, ruderal, coast live oak riparian woodland, coast live oak woodland, aquatic, and seasonal wetlands. An aerial photograph of the project site showing the habitats is Figure 6 on the following page, and the table below summarizes the amount of each habitat on the site.

Table 1		
Acreage Summary of Habitats for The Institute Golf Course Habitat Type		
Habitat Type	Acres	Percent of Total
Developed ¹	152	80%
Ruderal ²	26.23	14%
Coast Live Oak Riparian Woodland	3.37	1.76%
Coast Live Oak Woodland	2.25	1.2%
Aquatic ³	4.78	2.5%
Seasonal Wetlands	1.37	0.24%
Total	190.46	100%

¹Includes ornamental habitat and the golf course.

²Includes bare ground and areas of non-native grassland.

³Includes artificial standing and flowing waters.



BIOTIC HABITATS

FIGURE 6

Biotic Resources on the Project Site

Developed

Vegetation

Approximately 80% of the project site has been developed as golf course. Numerous trees including redwood, eucalyptus, acacia, exotic pines and ornamental plum trees are scattered or in dense stands throughout the site. The golf course is intensively maintained, and mowed in its entirety on a daily basis, except in the winter, when the mowing frequency is reduced.

Wildlife

The manicured golf course provides lower quality wildlife habitat than adjacent non-native grasslands, because regular mowing and intensive use of pesticides removes potential food such as invertebrates and seeds. Despite the disturbance, developed areas do provide foraging and, in some cases, nesting habitat for a number of wildlife species. California ground squirrels, and Botta's pocket gophers were present in 2000, but infrequent in some peripheral areas near the golf course and in adjacent areas with non-native grasslands. Other small mammals such as the non-native house mouse, deer mouse, broad-footed mole, western harvest mouse, and desert cottontail may also occasionally forage at the periphery of the golf course adjacent to intact grassland habitat. Reptile species common to this habitat type include the western fence lizard and gopher snake. Birds that nest or roost in riparian or ornamental vegetation around these developed habitats, such as the California Towhee, Mourning Dove, House Finch, Lesser Goldfinch, and Western Scrub-Jay, forage within these habitats. Raptors such as the White-tailed Kite, Red-shouldered Hawk, Red-tailed Hawk, and American Kestrel, as well as the Loggerhead Shrike, may forage in these habitats as well. During winter, sparrows and finches may forage in the developed areas. Numerous structures provide nesting sites for the Rock Dove, Black Phoebe, Cliff Swallow, Barn Swallow, Northern Rough-winged Swallow, and White-throated Swift. Additionally, these structures provide potential roosting habitat for several species of bats, such as Yuma bat, California bat, big brown bat, pallid bat, Townsend's big-eared bat and Mexican free-tailed bat.

Coast Live Oak Riparian Woodland

Vegetation

Although three branches of Corralitos Creek converge on the site, only one has flows sufficient to warrant riparian classification of the adjacent habitats. The riparian corridor on the site is dominated by coast live oak riparian woodland, and occurs between the residence and the eastern property boundary (refer to Figure 6). This habitat does have the appearance of forest in places, though the sometimes high canopy is more attributable to the topography. Despite the steep gradient along much of the creek alignment, pools do occur along the creek, and water continues to flow through the summer. Beyond the slopes and banks of this corridor, the trees sometime assume the appearance of oak savanna before the golf course begins. A dam is located at the bottom of the riparian corridor, though it has not been used to impound water for some time; a single, large culvert has been placed in the creek course at the top of the corridor where an access road crosses the creek.

In addition to the coast live oaks that dominate this riparian corridor, California sycamore, valley oak, and California walnut are all common between the banks. Numerous seedling and sapling oaks are sprouting within the canopy. The understory is mostly shady and is dominated by ripgut brome, and creeping wild rye. Forbs, including torilis and greater periwinkle, form abundant understory, particularly near the residence at the bottom of the main corridor. Poison oak and California blackberry were found to be abundant throughout the riparian corridor, sometimes forming thickets.

Wildlife

Although not extensive and somewhat isolated, the on-site riparian habitat is multilayered (i.e., ground covers, shrubs, small trees, and large oaks) and a diverse group of wildlife can inhabit this area. Amphibians and reptiles, such as the slender salamander, Pacific treefrog, western toad, western fence lizard, southern alligator lizard, as well as species found in moist woodlands such as the ringneck snake, are often found in riparian areas similar to those found on the project site. Several California red-legged frogs (5 sub-adults and several confirmed tadpoles) were observed in the creek. The oaks provide food sources for many bird species such as the observed Oak Titmouse, Acorn Woodpecker, California Quail, Pacific-slope Flycatcher, and Steller's Jay. Other birds, such as the Red-breasted Sapsucker, forage here in the winter. Neotropical migrants such as Cassin's Vireo are expected to forage in the coast live oaks during migration; the Bewick's Wren and Spotted Towhee were observed foraging in the understory.

The abundance of small birds and mammals in oak woodlands supports large numbers of avian and mammalian predators. A Cooper's Hawk was observed foraging on the site and other predators, such as the Red-shouldered Hawk, Sharp-shinned Hawk, coyote, raccoon, and striped skunk may also prey on smaller vertebrates in this habitat. Predators such as gray fox, and bobcat may visit this area to feed on a variety of small rodents.

Coast Live Oak Woodland

Vegetation

Remnant coast live oak woodland occurs in the non-riparian drainages on the site (refer to Figure 6). In addition to coast live oaks, valley oaks and various ornamental species predating the golf course occur within and around these drainages, including acacia, eucalyptus, redwood, and English elm. Other trees, including many old oak volunteers and other planted natives, are also scattered throughout the site, yet the distribution of these trees does not warrant classification as woodland. Areas where annual grasses and noxious weeds have infested drainages have been described as ruderal habitat and are discussed on the following page.

Wildlife

Vertebrate wildlife occurring in this habitat comprises species fairly tolerant of human disturbances. Because this habitat is also not particularly multilayered (i.e., does not include ground covers, shrubs, small trees, and large oaks), and native trees are both isolated and mixed with less productive non-native trees, the wildlife found here is limited. Nonetheless, birds that possibly nest in this disturbed habitat include the American Robin, Mourning Dove, Western Scrub-Jay, Steller's Jay, California Towhee, Chestnut-backed Chickadee and

Bushtit. Townsend's Warbler and Northern Flicker are winter visitors to this habitat. Commonly occurring reptiles, such as the western fence lizard and gopher snake may find cover in this habitat. There was no evidence of burrowing mammals, such as Botta's pocket gopher, but this habitat may attract and recruit small numbers of rodents from adjacent, more productive, habitats. A few larger mammals, such as the Virginia opossum, raccoon, striped skunk, feral cat, and black-tailed deer are also expected to occasionally visit this habitat.

Ruderal/Non-Native Grassland

Vegetation

Ruderal habitat is the most abundant natural habitat on the site (refer to Figure 6). Areas of non-native grassland and bare ground have been regarded as ruderal habitat for the purposes of this survey, considering the on-going disturbance of these areas and/or their origin due to previous disturbances (previous farming and range uses). Ruderal habitat occurs primarily along the boundaries of the project area (especially the western fence line), within and adjacent to the riparian habitat, and as islands surrounding structures, parking lots, etc. Most of the non-native grassland is adjacent to and between the drainages and the riparian corridor.

No plant species dominates any of the ruderal or non-native grassland areas on the site, though many species range from common to locally abundant throughout. Such species include grasses such as wild oats and various bromes, and forbs such as yellow star thistle, milk thistle, black mustard, milkweed, and bristly ox tongue. Many of the ruderal forbs (yellow star thistle, bristly ox tongue) were found to have completely infested portions of both the drainages on the site.

Wildlife

Vertebrates found in the ruderal areas on the site include many of those species found in the developed habitats, and many species using the adjacent grasslands and agricultural fields likely forage in and move through the ruderal habitat. Common wildlife species include western fence lizards, Ring-necked Pheasants, Killdeer, House Finches, Western Meadowlarks, Red-winged Blackbirds, American Goldfinches, Mourning Doves, house mice, desert cottontails, black-tailed hares, and California ground squirrels. Loggerhead Shrikes, a California species of special concern, also forage and may breed within this habitat. The on-site ruderal habitat includes wetlands that could provide breeding habitat for the Song Sparrow and Common Yellowthroat.

Aquatic

Vegetation

Aquatic habitat within the riparian corridor on the site is currently limited to a low flow creek connecting a few pools within the riparian woodland habitat (refer to Figure 6). The centerline of the creek is shaded by the canopy. Little or no emergent vegetation was found within the creek. Other hydrophytic species such as watercress, rabbitsfoot grass, and algae were only occasional along the watercourse, where gaps in the canopy provided enough light for these species to grow. The drainages are completely dry except for saturated conditions in the freshwater marsh habitat along the course of the main drainage.

The developed areas contain a total of eight artificial ponds that are almost entirely devoid of vegetation. With the exception of the spring fed pond in the southeast corner of the site, all artificial water bodies are pump-fed. All of the ponds appear to be treated with herbicide to inhibit algae growth.

Wildlife

Aquatic habitat within the riparian corridor on the site provides breeding habitat for amphibians, such as the observed Pacific tree frog and the federally-listed California red-legged frog. This creek appears hydrologically isolated from bodies of water with predatory species, such as the bullfrog, and the ponds occurring along this creek are therefore productive breeding areas for the red-legged frog.

Because the artificial creeks and ponds are almost entirely devoid of emergent vegetation, the overall value to most wildlife is limited. However, submerged aquatic plants, including algae species, provide the basis for food chains that support invertebrates and amphibian larvae of the western toad, Pacific tree frog, California red-legged frog, and California tiger salamander. Shorebirds, such as the Black-necked Stilt, Greater Yellowlegs and Spotted Sandpiper forage on prey along the edges of these ponds. Waterfowl such as the Mallard and American Coot forage on the open water, and other wildlife, such as the raccoon and Virginia opossum, forage along the perimeter of these ponds and artificial creeks.

Seasonal Wetlands

Vegetation

Potential wetlands occur in three separate locations across the golf course for a combined total of 1.37 acres (refer to Figure 6). These can be classified as wetland drainage and spring-fed wetland. While the hydrology associated with each of these wetlands is distinct, all potential wetlands on the site can be regarded as seasonal. Wetland drainage habitat occurs within the non-riparian drainage on the site and is characterized by the presence of abundant hydrophytes where water collects along the drainage course during the winter. The dominant species observed in the wetland drainage areas on the site include cattails, cocklebur, Italian rye, and clustered dock; the area dominated by cattails is insufficient in size and development to be regarded as freshwater marsh.

The spring-fed wetland is located in the vicinity of golf hole nine. This wetland occurs as a spring that feeds a narrow channel around which golf course contours are graded, and leads to an adjacent concrete-lined collection pond. Portions of the channel appear to be concrete lined to prevent erosion, but is otherwise overlain with soil and serpentine material. Serpentine riprap and boulders have also been placed upstream, in a depression connected to the spring-fed channel. This serpentine material reportedly originated from elsewhere on the site⁴.

At the time of the survey, the vegetation at the mouth of the spring and along the channel includes mostly annual rabbitsfoot grass, bird's foot trefoil and upland weeds such as sow thistle and yellow-star thistle; very little vegetation occurred along the concrete lined pond.

⁴Kevin Robins, Director of Construction and Maintenance for the Institute, Personal Communication.

The spring and channel are subject to regular maintenance, but would otherwise have the potential to develop vegetation associated with serpentine seeps, considering the influence of serpentine materials and perennial flows associated with this area.

Wildlife

Because of the disturbance these wetlands and the habitat surrounding the wetlands have undergone, the wildlife species present in these wetlands are primarily common, widespread species, or species more typically associated with the adjacent ruderal or developed habitats. Pacific tree frogs, Western toads, Western fence lizards, gopher snakes, and common garter snakes may occur here. Birds such as the Song Sparrow may nest in this habitat and other birds such as the California Towhee, Mourning Dove, House Finch, Lesser Goldfinch, and Western Scrub-Jay, forage within these habitats. In areas where these habitats are drier during the summer, mammals expected to be present include the California vole, western harvest mouse and desert cottontail. Raptors such as the White-tailed Kite, Red-shouldered Hawk, and American Kestrel, as well as the Loggerhead Shrike, may forage in these habitats as well.

In addition, a number of special-status animal species have been observed on this site, as discussed below.

Special-Status Plant and Animal Species

Federal and state endangered species legislation gives several plant and animal species known to occur in the vicinity of the project site special-status. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive some species occurring in the vicinity of the project site. Such species are referred to collectively as "species of special-status."

Information concerning threatened, endangered, or other special-status species that may occur in the area was collected from several sources. The sources consulted included the California Department of Fish and Game (CDFG) Natural Diversity Data Base (CNDDDB 2001), California Wildlife Habitat Relationships species notes (CDFG 1988, 1990a, 1990b), and miscellaneous information available through the United State Fish and Wildlife Service (USFWS), CDFG, and technical publications. The California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994) and The Jepson Manual (Hickman 1993) supplied information regarding the distribution and habitats of vascular plants in the vicinity.

Special-Status Plant Species

Reconnaissance level surveys were conducted on July 26, 27, and 28 of 2000 throughout the golf course and natural areas on the site. A query of the California Natural Diversity Database was performed to identify special-status plant species potentially occurring on the site and in the project vicinity. Habitats specified in the query included aquatic, freshwater marsh, artificial flowing waters, artificial standing waters, cismontane woodland, riparian woodland, and valley and foothill grasslands. These habitats were chosen for the similarity of their constituent species to those on the site, as well as the proximity of the site to such habitats. In addition, the California Native Plant Society Inventory (CNPS 1994) was used to

identify and assess additional species occurring in similar habitats throughout Santa Clara County.

A total of 53 special-status plant species were identified in these queries, of which 21 are regarded as potentially occurring under the existing conditions on the site. The remaining 32 species were not considered any further because of the absence of suitable habitat on the site, and/or they are thought to be extirpated from Santa Clara County, the most recent occurrences are historic, or they are considered extinct. Of the 21 potentially occurring species, eight species are serpentine endemic plants, six are often associated with serpentine habitats, and the remaining seven occur in grasslands and/or alkaline environments.

Blooming period surveys were conducted on the project site by the project proponent's consulting biologist. The surveys addressed all of the 21 special-status plant species that could potentially occur on the project site. None of the special-status plant species were found on the project site during the blooming period surveys, and therefore, are considered absent from the project site.

Special-Status Animal Species

Reconnaissance-level field surveys were conducted over the entire project site on July 26 and 27, 2000 by H.T. Harvey and Associates. Since then, an additional special-status wildlife species survey was conducted on April 24, 2001 and a focused survey was conducted on September 19, 2001 to verify the reported occurrence of California red-legged frogs on the site.

The following special-status species are known to breed, or could breed, on the site: California red-legged frog, California tiger salamander, western pond turtle, White-tailed Kite, Cooper's Hawk, Burrowing Owl, Loggerhead Shrike, Townsend's big-eared bat, and pallid bat. These species, as well as other species for which agencies have expressed particular concern, are discussed in greater detail below.

Federal or State Endangered or Threatened Species

California Red-legged Frog (*Rana aurora draytonii*) - The California red-legged frog is one of two subspecies of the red-legged frog, and was officially listed as a Threatened species under the auspices of the Federal Endangered Species Act, based largely on a significant range reduction and continued threats to surviving populations. Factors related to declines in populations of red-legged frogs include the degradation or loss of habitat attributed to agricultural practices, introduced plants and animals, livestock grazing, mining, water diversions and impoundments, water quality, recreation activities, timber harvesting, and urbanization.

California red-legged frogs have been observed in a variety of aquatic and terrestrial habitats throughout their historic range, including natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits containing water, and large reservoirs. The key to the presence of California red-legged frogs in these habitats is the presence of perennial, or near perennial, water and the general lack of introduced aquatic predators such as crayfish, bullfrogs, green sunfish, bluegill and centrarchid fishes such as largemouth bass. In addition to aquatic

habitats, juvenile and adult California red-legged frogs use areas of riparian vegetation within a few yards of water.

On April 24, 2001, California red-legged frogs were observed in the natural creek along the northern edge of the project site. Both sub-adults and larvae were observed at the two ponds within the riparian habitat. Additionally, a male red-legged frog was heard calling and larvae were observed at the manmade pond in the southeastern corner of the project site. In September 2003, red-legged frog juveniles and adults (50 total) were observed in all ponds and the seep on the site. In summary, the project site supports a population of red-legged frogs at present.

Federal or State Candidate Species

California Tiger Salamander (*Ambystoma californiense*) - The California tiger salamander is a Federal Candidate species and a State Species of Special Concern. The California tiger salamander has disappeared from a significant portion of its range due to habitat loss attributed to agricultural practices and urbanization, and the introduction of non-native aquatic predators (e.g., bluegill, largemouth bass, mosquitofish, and bullfrogs). The California tiger salamander's current range includes the Great Central Valley of California and adjacent foothill districts as well as the coastal grasslands between the San Francisco Bay and Santa Barbara County.

The California tiger salamander's preferred habitat are vernal, ephemeral, or man-made ponds that are surrounded by uplands that contain small mammal burrows. The ponds provide breeding and larval habitat while the burrows provide aestivation habitat that supports juvenile and adult salamanders. A California tiger salamander was observed in the pond at the southern corner of the site. There are no or very few small mammal burrows (aestivation habitat) on the site, however, to support juvenile and adult salamanders. Therefore, it is assumed that salamanders breeding in this pond are traveling off-site to locate small mammal burrows. It is not known if a breeding population of the California tiger salamander occurred on the site prior to grading.

State Protected and/or California Species of Special Concern

Western Pond Turtle (*Clemmys marmorata*) - The western pond turtle is a State Species of Special Concern. The preferred habitat for western pond turtle includes ponds or slow-moving water with numerous basking sites (logs, rocks, etc.), food sources (plants, aquatic invertebrates, and carrion), and few predators (raccoons, introduced fishes, and bullfrogs). Pond turtles have been commonly observed moving long distances to reach isolated stock ponds and other aquatic habitats. No suitable breeding habitat is present on-site but pond turtles may occur on site as they move through the area to reach nearby suitable aquatic habitats. One western pond turtle was observed at the pond on the northeastern section of the project site.

White-tailed Kite (*Elanus caeruleus*) - The White-tailed Kite prefers habitats with low ground cover and variable tree growth. Kite nests are built near the tops of oaks, willows, or other dense broad-leaved deciduous trees in partially cleared or cultivated fields, grassy foothills, marsh, riparian, woodland, and savannah. Kites prey primarily on small rodents (especially the California vole), but also feed on birds, insects, reptiles, and amphibians. Although this species was considered endangered in the state of California, the fully

protected kite is now fairly common. White-tailed Kites have been observed in the project vicinity, and suitable breeding habitat exists in many of the trees on the site.

Cooper's Hawk (*Accipiter cooperii*) - The Cooper's Hawk preys on a variety of bird species and occasionally takes small mammals and reptiles. Breeding pairs usually select nest sites within dense stands of live oak woodland, riparian habitats, or other wooded areas. A Cooper's Hawk was observed foraging on the site in 2000 and this species has been recorded in the vicinity of the site primarily during migration and winter. Potential breeding habitat for this species occurs in the dense coast live oak trees along the riparian habitat.

Burrowing Owl (*Athene cunicularia*) - The Burrowing Owl is a small, terrestrial owl of open country. Burrowing Owls favor flat, open grassland or gentle slopes and sparse scrubland ecosystems. These owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, Burrowing Owls are found in close association with California ground squirrels. Owls use ground squirrel burrows for shelter and nesting. Loss of habitat and campaigns against the burrowing mammals upon which Burrowing Owls depend for nesting habitat are suspected causes of species decline.

Although California ground squirrels and their burrows were observed on the site in 2000, no Burrowing Owls were observed during reconnaissance level surveys. During the 2001 reconnaissance-level survey, no ground squirrels or ground squirrel burrows were observed on the project site. Burrowing Owls are known to occur in the Morgan Hill area but it is not known if this species bred or otherwise occurred on the project site in previous years. Because habitat for Burrowing Owls was observed during the 2000 survey, they could occur on-site.

Loggerhead Shrike (*Lanius ludovicianus*) - The Loggerhead Shrike is a predatory passerine that forages in grasslands or ruderal habitats for small reptiles, mammals, birds, and insects and nests in small trees and shrubs. In approximately the last 20 years, populations of the Loggerhead Shrike in eastern North America have declined significantly. Although Loggerhead Shrikes are still considered a fairly common species in much of California, the piecemeal loss of grasslands has caused local declines in many areas, and the species as a whole is declining somewhat in the state.

Loggerhead Shrikes were observed foraging on the project site in 2001. Suitable nesting substrate for this species, dense trees and tall shrubs with an understory of herbaceous vegetation, occurs along the periphery of the project site.

Pallid Bat (*Antrozous pallidus*) - Coastal colonies of Pallid bats commonly roost in deep crevices in rocky outcroppings, in buildings, under bridges, and in hollow trees. Colonies can range from a few individuals to over a hundred. Pallid bats prefer foraging on terrestrial arthropods in dry open grasslands near water and rocky outcroppings or old structures. They may also forage in oak woodlands and at the edge of redwood forests along the coast. Because most of the project site is developed with the golf course, foraging habitat on the site is only marginal. However, optimal foraging habitat occurs adjacent to the site, and roosting habitat occurs in the larger oaks and in some buildings on the site. A colony could occur on the site.

Townsend's big-eared bat (*Corynorhinus townsendii*) - Townsend's big-eared bat is a colonial species and females aggregate in the spring at nursery sites known as maternity

colonies. Although usually a cave dwelling species, many colonies are found in man made structures such as the attics of buildings or old abandoned mines. This species is easily disturbed while roosting in buildings, and females are known to completely abandon their young when disturbed. Potential roosting habitat for this species occurs in the old Flying Lady Restaurant building and possibly other structures. This species could roost and possibly breed on the project site.

Regulated Habitats and Resources

Waters of the United States

The United States Army Corps of Engineers (USACE) has jurisdiction over *Waters of the United States* under the provisions of Section 404 of the Clean Water Act (1972). These “waters” may include intrastate lakes, rivers, streams, and natural ponds, tributaries to Waters of the United States, and adjacent wetlands. Wetlands are areas in which saturation occurs with sufficient frequency and duration to promote plants adapted to such conditions. Wetlands on non-agricultural lands are identified using the Corps of Engineers Wetlands Delineation Manual.

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must be in compliance with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Board [RWQCB]) charged with implementing water quality certification in California.

USACE may regulate the seasonal wetlands, and the tributary waters of the riparian corridor and drainages on the site (including the wetland drainages and spring-fed wetland). An aerial photograph showing the locations of potentially regulated areas on the site is shown on Figure 7. The seasonal wetlands occupy approximately 1.37 acres, while the total length of tributary waters measures approximately 3,234 linear feet. The remaining area of the project site (approximately 188 acres) did not meet the regulatory definition of jurisdictional waters. This includes all of the irrigation ponds, the pond collecting spring water, and the artificial creeks with their associated ponds.

State Regulated Habitats

Activities that result in the diversion or obstruction of the natural flow of a stream, or substantially change its bed, channel or bank, or utilize any materials (including vegetation) from the streambed require that the project proponent enter into a Streambed Alteration Agreement with California Department of Fish and Game (CDFG), under sections 1600 through 1603 of the California Fish and Game Code. The CDFG definition of a stream includes "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams mapped on USGS quads, and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered

streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife".

The bed and banks of both natural drainages, and the riparian corridor on the site have been identified as USGS blue-line streams throughout most of their lengths, and as such are subject to the regulatory jurisdiction of the CDFG (refer to Figure 7). The boundary of this jurisdiction may include contiguous riparian and woodland tree canopy extending beyond the top-of-bank. The total area of CDFG jurisdiction on the site could therefore be approximately 9.72 acres. Lands within the riparian corridor and drainages on the site have been developed as golf course, without the benefit of any setback from these areas.

Ordinance-Size Trees

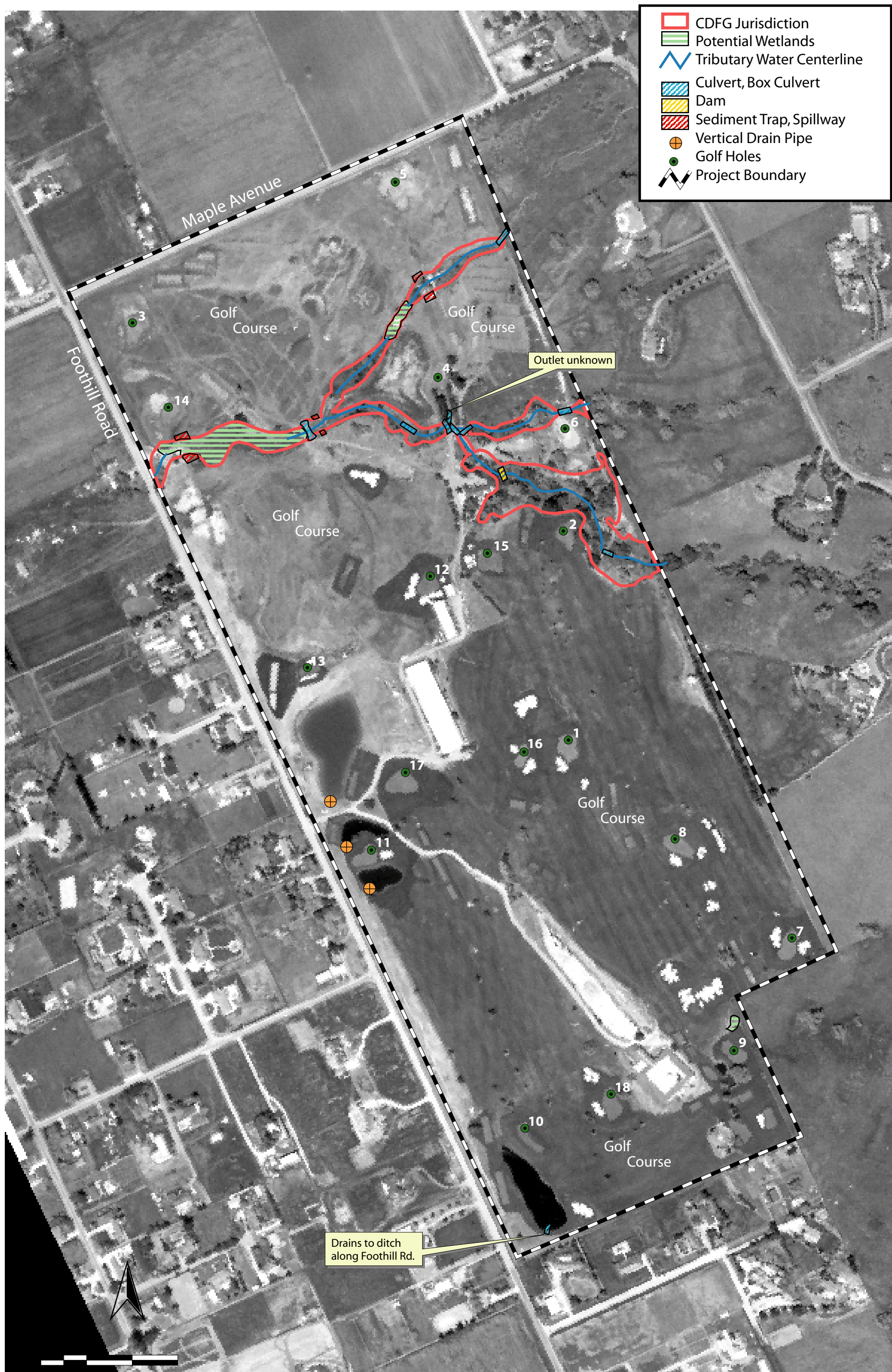
The City of Morgan Hill Restrictions on Removal of Significant Trees (Morgan Hill Code, sections 12.32.010 through 12.32.150) serves to protect non-indigenous trees having a trunk circumference measuring 40 inches or more (13 inches in diameter) and indigenous trees having a circumference measuring 18 inches or more (6 inches in diameter) at 4.5 feet above the natural grade of slope. A tree removal permit is required from the City of Morgan Hill for the removal of ordinance-sized trees. In addition, the City of Morgan Hill requires, prior to the issuance of any approval or permit for construction of any improvement of the building site, that all trees on the project site be inventoried and categorized according to size, species, and location. A formal tree survey was not conducted prior to golf course development. Several hundred trees that pre-date the golf course currently exist on the site, many of which are native and some may be of ordinance size.

2. Impacts to Biological Resources

Thresholds of Significance

For the purposes of this project, a significant impact to biological resources will occur if the project will:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations; or
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations; or
- have substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; or
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.



Special-Status Plant Species

As reflected in a letter from the project proponent's consulting biologist (refer to Appendix C), blooming period surveys were conducted on the project site for all of the 21 special-status plant species that could potentially occur on the project site. None of the special-status plant species were found on the project site during the blooming period surveys, and therefore, are considered absent from the project site.

- ? **Play on the golf course, golf course maintenance, demolition of the existing restaurant building and construction of a new building in its place for use as the Mathematics Institute headquarters, and the renovation and use of other structures on the project site as golf course and Mathematic Institute facilities will not impact existing special-status plant species. (Less Than Significant Impact)**

Riparian Habitat

Riparian areas in central California support a rich and diverse wildlife component. Wildlife use of these habitats is adversely affected by the close proximity of human activity and the placement of structures. The quality of the riparian habitat and type of structures or activities adjacent to it determines the overall effect on wildlife use. In general, the greater the amount of human activity and the closer that activity occurs to riparian areas, the greater the potential for negative impacts to wildlife use.

Therefore, it is generally desirable to minimize human activities adjacent to riparian habitats. The need to reduce the impacts of human use has led to the development of the setback or buffer concept along riparian areas as an attempt to reduce impacts to riparian areas. While empirical evidence exists to support the hypothesis that wildlife values of the riparian corridor can be compromised by adjacent human activity, little empirical data presently exists for the establishment of a precise setback area. Nonetheless, riparian setbacks of at least 100 feet are often recommended by CDFG as appropriate for streams with high quality riparian habitat. Setbacks are typically measured from either the top of the bank or the outer edge of riparian vegetation, whichever is greater.

Golf course development has occurred immediately adjacent to the riparian and drainage areas located on the site. This includes approximately 4,240 feet along the lower quality drainages, and 1,413 feet along the riparian corridor. This is a significant impact. In addition, approximately 0.5 acres of riparian habitat were removed during the development of the golf course. Ongoing play on the golf course, the renovation of existing structures, demolition of the existing restaurant building and the construction of the new Mathematics Institute headquarters in its place would not remove additional riparian habitat. Whatever riparian habitat was removed is gone. The loss of riparian habitat during the construction of the golf course would be a secondary impact resulting from the City's decision to allow the existing golf course to remain, and to not replace the riparian habitat previously removed. A discussion of the riparian habitat removed is in **Section III., Secondary Impacts.**, in this EIR.).

- ? **On-going use and maintenance of the golf course could have a substantial adverse effect the existing riparian habitat on the site. (Significant Impact)**

Ordinance-Size Trees

Ongoing play on the golf course would not impact ordinance-size trees. Whatever trees that were removed are gone. Impacts to ordinance size trees would be a secondary impact resulting from the City's decision to allow the existing golf course to remain, and to not replace any trees previously removed. That discussion is in **Section III., Secondary Impacts.**, in this EIR.

Habitat of Certain Special-Status Animal Species

No suitable habitat exists for, and/or the project site is outside the known distribution of, several special-status animal species that occur in this region. These include the steelhead rainbow trout, Chinook salmon, Bay checkerspot butterfly, Bald Eagle and California mastiff bat. These species are not expected to occur on the project site and would not be affected by the project.

Some special-status animal species may only be occasional visitors, migrants, or transients that are occasionally found on or near the project site. These species include the Sharp-shinned Hawk, Ferruginous Hawk, Golden Eagle, Prairie Falcon, Merlin, American Peregrine Falcon, Vaux's Swift, Willow Flycatcher, Yellow-breasted Chat, California Yellow Warbler, California Horned Lark, and San Francisco dusky-footed woodrat. The project will have no effect on the breeding success of any of these species, although it will result in a small reduction of foraging and/or roosting habitat available to them regionally. Due to the abundance of similar habitats regionally, however, the project is expected to have a less than significant impact on these species that do not breed on the site.

Due to the marginal quality of the habitat located on the site, it is unlikely that special-status species such as the Cooper's Hawk and White-tailed Kite would breed on the project site. Likewise, the Loggerhead Shrike which is expected to breed in the vicinity of the project site, is a fairly common breeder with stable populations in central California. Because the habitat on the site is marginal and represents a small fraction of the available breeding habitat for these species in the region, and because all of these species are fairly common breeders elsewhere in central California, ongoing utilization of the golf course will have a less than significant impact on these species (however, see Potential Impacts to Nesting Raptors).

Foraging habitat on the site for the pallid bat and Townsend's big-eared bat is marginal because the site does not support large populations of insects. Therefore, the loss of this foraging habitat will have a less than significant impact on these species (however, see Potential Impacts to Roosting Bats)

? **On-going use and maintenance of the golf course, demolition of the existing restaurant building and construction of the new Mathematics Institute headquarters building in its place, and renovation of other structures on the project site will not substantially reduce the breeding and/or foraging habitat for the Special-Status Animal Species listed above. (Less Than Significant Impact)**

California Red-legged Frogs

The operation of the golf course is expected to affect California red-legged frogs in several ways. First, the operation could result in the incidental "take" of red-legged frogs. Because breeding areas are immediately adjacent to the maintained turf, individuals could be destroyed as a result of the operation of vehicles or by foot traffic, particularly at night (as well as early morning and late evening) when frogs are most apt to forage and/or disperse. Secondly, the accidental introduction of bullfrogs may result in the loss of significant numbers of frogs through predation. Thirdly, the operation of the golf course as proposed could result in impacts to frogs or the loss of breeding habitat via run-off contaminated with pesticides and/or herbicides from the maintained turf. The golf course was constructed right to the edge of the ponds and banks of the creeks and within the creek (hole 3), facilitating runoff from the golf course into the frog habitat. Any further grading of areas adjacent to breeding areas could both directly and indirectly affect red-legged frogs by harming individuals and/or further degradation of their habitat. Any and all of these impacts would be significant.

- ? **On-going use and maintenance of the golf course could have a substantial adverse effect on California red-legged frogs, a threatened species listed under the Federal Endangered Species Act. (Significant Impact)**

California Tiger Salamander

The operation of the golf course will affect California tiger salamanders in ways similar to the effects on California red-legged frogs discussed above. For example, impacts would include incidental "take" of tiger salamanders during normal golf course operations, increased predation by introduced bullfrogs, contamination of breeding ponds from golf course run-off, and further loss of individuals and habitat from future grading of areas adjacent to breeding areas. In addition, the eradication of ground squirrels and gophers on the site would greatly diminish the available upland aestivation habitat required by the salamanders. These impacts would be significant.

- ? **On-going use and maintenance of the golf course could have a substantial adverse effect on California tiger salamanders, a Candidate species listed under the Federal Endangered Species Act. (Significant Impact)**

Western Pond Turtle

Although no western pond turtle breeding habitat is present on site, one western pond turtle was observed during the survey on September 9, 2001. Therefore, the operation of the golf course could affect individual western pond turtles in ways similar to the effects on individual California red-legged frogs and California tiger salamanders discussed above. For example, impacts would include incidental "take" of western pond turtles during normal golf course operations and increased predation introduced bullfrogs. These impacts would be significant.

- ? **On-going use and maintenance of the golf course may have a substantial adverse effect on western pond turtle, a Species of Special Concern listed under the California Endangered Species Act. (Significant Impact)**

Burrowing Owls

Burrowing Owls were not observed on the project site during reconnaissance level surveys, however, Burrowing Owl are known to occur in the Morgan Hill area. California ground squirrels and their burrows were observed in 2000, therefore, Burrowing Owls could occur on the site. Although routine golf course uses and normal golf course maintenance, including landscaping, mowing, fertilizing, and irrigation will have no significant effect on Burrowing Owls, if Burrowing Owls are present at the time of future construction activities or during maintenance activities such as rodent control or replacing sod, the "take" of a Burrowing Owl could occur. The killing of a bird or a disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. Furthermore, the destruction of occupied Burrowing Owl burrows is also considered a taking.

- ? **Future construction or certain maintenance activities on the project site may result in the "take" of Burrowing Owls. (Significant Impact)**

Nesting Raptors

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under both federal and state laws and regulations. The federal Migratory Bird Treaty Act prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of prey are also protected in California under Fish and Game Code section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. Any loss of fertile raptor eggs or nesting raptors, or any activities resulting in raptor nest abandonment, would constitute a significant impact. Future maintenance or construction activities that disturb a nesting raptor on or immediately adjacent to the construction zone would constitute a significant impact.

- ? **Future construction and/or maintenance on the project site may disturb nesting raptors, which may result in the loss of eggs, young or the reproductive effort. (Significant Impact)**

Nesting Swallows

Cliff Swallows and Barn Swallows, among the many species protected by the federal Migratory Bird Treaty Act, nest on several of the buildings on the site. Although no large colonies were noted during 2000 or 2001 surveys, nests were found on most of the buildings, and in particular, the large vacant restaurant. The project could impact nests of these species if any structures to which the nests are attached are renovated or demolished during the nesting season, causing the loss of nests with eggs or young, or if construction occurs close enough to active nests to cause the abandonment of nests with young.

- ? **The demolition of the existing restaurant building and renovation and/or use of the other buildings on the site could disturb nesting swallows, which may result in the loss of eggs, young or the reproductive effort. (Significant Impact)**

Bats

The existing vacant restaurant building has large spaces, both in the attic and in the basement areas that could provide maternity roosting habitat for the pallid bat and the Townsend's big-eared bat. The pallid bat is also known to roost in tree cavities, and both species could roost in other structures found on the site. The removal of large oaks with cavities or the renovation or demolition of on-site structures could potentially result in the direct loss of colonies of either species, including the direct loss of a maternity colony of either species. The direct loss of individuals in a hibernacula could eliminate an entire colony due to the loss of the pregnant females. These impacts would be significant.

- ? **The demolition of the existing restaurant building, renovation of any other building on the project site, or the removal of large trees on the site may disturb or destroy roosting pallid and/or Townsend big-eared bats. (Significant Impact)**

Degradation of Water Quality

There are four sources of non-point source pollution from the existing 18-hole golf course and facilities that could impact water quality downstream of the project site. These include golf course parking and maintenance facilities, nitrogen loading from application of turf fertilizers and irrigation water use, pesticide and herbicide use, and construction and grading activities. The project site is within the Llagas Creek watershed. Storm water run-off from developed areas of the site eventually enter Llagas Creek, approximately two miles from the project site. Llagas Creek provides habitat for known populations of the western pond turtle, a California Species of Special concern and the central coast steelhead (a federally-listed species). If the water quality within Llagas Creek is degraded by this project during high flows, it may adversely affect these wildlife species.

The golf course that was built on this site has installed turf up to the very edge of the creek bank, on both sides of the creek, and all other water features on the project site. The golf course operation maintains the turf with chemicals up to the edge of the remaining riparian vegetation. These physical conditions which were created by construction of the golf course facilitate the introduction of organic pollution (grass clippings), sediments, and chemical pollutants into Corralitos Creek, and the Llagas Creek watershed. This is a significant impact.

- ? **On-going use and maintenance of the golf course and on-site pavement may degrade water quality downstream of the project site, which provides habitat for several special-status species. (Significant Impact)**

3. Mitigation and Avoidance Measures

Mitigation Measures Proposed by the Project

Mitigation for Impacts to Burrowing Owls

The following mitigation measure is proposed by the project proponent to reduce the impacts to Burrowing Owls:

- The project will comply with the City of Morgan Hill's *Citywide Burrowing Owl Mitigation Plan*. A copy of this plan can be found in Appendix C of this EIR.

Conclusion: The preceding mitigation measure will reduce the impacts to Burrowing Owls to a less than significant level. **(Less Than Significant Impact With Proposed Mitigation)**

Mitigation for Impacts to Nesting Raptors

The following mitigation measures are proposed by the project proponent to reduce impacts to nesting raptors that could result from the removal of trees or construction or demolition activities near trees during the nesting season:

- Demolition and/or construction will be scheduled to avoid the nesting season to the extent feasible. The nesting season for most raptors in the south San Francisco Bay Area extends from January through August.
- If it is not possible to schedule demolition and construction between August and January, then preconstruction surveys for nesting raptors will be conducted by a qualified ornithologist or wildlife biologist to ensure that no raptor nests will be disturbed during project implementation. This survey will be conducted no more than 14 days prior to the initiation of demolition/construction activities during the early part of the breeding season (January through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the qualified biologist will inspect all trees and other likely habitat in and immediately adjacent to the impact areas for raptor nests. If an active raptor nest is found close enough to the construction/demolition area to be disturbed by these activities, the ornithologist, in consultation with CDFG, will determine the extent of a construction-free buffer zone to be established around the nest.

Conclusion: The preceding mitigation measures would reduce the impacts to nesting raptors to a less than significant level **(Less Than Significant Impact With Proposed Mitigation)**

Mitigation for Impacts to Nesting Swallows

The following mitigation measures are proposed by the project proponent to reduce the impacts to nesting swallows:

- Avoid nesting season construction. Construction or renovation on any building would be scheduled to avoid the nesting season, if possible. The CDFG recognizes the period between February 15th and September 1st as swallow nesting season in the south San Francisco Bay Area. If it is not possible to schedule construction to occur between September and mid-February, then one of the following procedures will be followed:
 - ? Remove nests before February 15th. Remove all old nests in areas that would be disrupted by the proposed work before swallows return to the nesting site. Once the birds return, removal must be repeated at a frequency necessary to prevent nest completion until project construction is complete.
 - ? Preconstruction surveys for nesting swallows will be conducted within 48 hours prior to the start of any construction, demolition, or renovation to ensure that swallows are not utilizing areas to be disturbed.
- Prior to issuance of any grading, demolition, or construction permits by the City, the project proponent will provide verification that any structures to be affected have been inspected by a qualified ornithologist who found no evidence of use by swallows. The project proponent has stated that no occupied swallow nests will be destroyed.

Conclusion: The preceding mitigation measures would reduce the impacts to nesting swallows to a less than significant level. **(Less Than Significant Impact With Proposed Mitigation)**

Mitigation for Impacts to Bats

The following mitigation measures are proposed by the project proponent to reduce the impacts to bats:

- A predemolition/preconstruction survey for roosting bats will be conducted by a qualified bat biologist three to 15 days prior to any demolition or renovation of buildings, particularly those with closed areas such as an attic space, or the removal of trees 12 inches in diameter at four and one-half feet above grade. No activities that would result in disturbance to active roosts would proceed prior to the completed surveys. If no active roosts are found, then no further action would be warranted. If a maternity roost is present, a qualified bat biologist would determine the extent of construction-free zones necessary around active nurseries. If either a maternity roost or hibernacula is present, the following mitigation measures will be implemented and CDFG would also be notified of any active nurseries within the construction zone:
 - ? If active maternity roosts or hibernacula are found, the project would be redesigned, if possible, to avoid the disturbance of the building or tree occupied by the roost.

- ? If an active maternity roost is located and the project cannot be redesigned to avoid disturbing the occupied tree or structure, construction activities would commence either before maternity colonies form (i.e., prior to March 1st) or after young are volant (flying) (i.e., after July 31st). The disturbance-free buffer zones necessary around a maternity roost, as determined by a qualified bat biologist in consultation with the CDFG, will be observed during the maternity roost season (March 1st - July 31st).

- ? If a non-breeding bat hibernacula is found in a structure or tree scheduled to be razed, the individuals will be safely evicted, under the direction of a qualified bat biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow airflow through the cavity. Demolition will then follow no later than the following day (i.e., there shall be no less than one night between initial disturbance for airflow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed would first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

- Prior to issuance of any grading, demolition, or construction permits by the City, the project proponent will provide either: (1) verification that any structures effected have been inspected by a qualified bat biologist who found no evidence of use by bats, or (2) a permit from the USFWS.

Conclusion: The preceding mitigation measures will reduce the impacts to bats to a less than significant level. **(Less Than Significant Impact With Proposed Mitigation)**

Mitigation for Impacts to California Red-legged Frogs

The project proponent's proposed mitigation measures for the California red-legged frog, California tiger salamander, and western pond turtle are described in the March 3, 2003 letter to the City of Morgan Hill. The letter is included in Appendix C of this EIR. The following is an assessment of the adequacy of key elements of those mitigation measures:

The project proponent proposes aquatic habitat buffers that are widest (up to 300 feet from the centerline of the creek) where they are furthest away from active play areas and are substantially narrower (as little as 25 feet from the centerline of the creek) adjacent to active play areas and have average buffer widths of only 50 feet. These buffer widths are not adequate to protect the sensitive species in those areas where they require the greatest protection (adjacent to active play areas). The project proponent also proposed to control bullfrogs and predatory fish by destroying floating bullfrog egg masses, gigging bullfrogs and seining predatory fish. This will not effectively insure that bullfrogs and predatory fish will be fully eradicated from the aquatic habitats of the project site. It is necessary to annually drain ponds during the late summer to insure bullfrog eradication. The project proponent's proposed mitigation measures are inadequate to reduce impacts to red-legged frogs to a less than significant level.

Mitigation for Impacts to California Tiger Salamanders

The project proponent's proposed mitigation measures for the California red-legged frog, California tiger salamander and western pond turtle are described in the March 3, 2003 letter to the City of Morgan Hill. The letter is included in Appendix C of this EIR. As for the California red-legged frog, the project proponent's proposed measures are inadequate to mitigate impacts to California tiger salamanders to a less than significant level.

Mitigation for Impacts to Western Pond Turtles

The project proponent's proposed mitigation measures for the California red-legged frog, California tiger salamander and western pond turtle are described in the March 3, 2003 letter to the City of Morgan Hill. The letter is included as Appendix C of this EIR. As for the red-legged frog, the project proponent's proposed measures are inadequate to mitigate impacts to western pond turtles to a less than significant level.

Conclusion: The project proponent's proposed mitigation measures for the California red-legged frog, California tiger salamander, and western pond turtle are inadequate to reduce impacts to the three species to a less than significant level. The proposed project does not include any mitigation measures for impacts to riparian habitat. **(Significant Unmitigated Impact).**

In the DEIR that circulated in January 2003 for this project, mitigation was described that could reduce all of the project impacts to vegetation and wildlife to a less than significant level.

Since the DEIR circulated, the USFWS has worked with the project proponent to develop a mitigation program for the red-legged frog, which is a federally listed species. That mitigation program does not fully address project impacts to other sensitive species, or to riparian habitat, or to water quality.

The City's consultants have provided supplemental recommendations to mitigate impacts to California tiger salamander, western pond turtle, riparian habitat, and water quality. The following descriptions of possible mitigation measures that could be required of the proposed project include two mitigation packages for impacts to red-legged frog, California tiger salamander, and western pond turtle. The two mitigation packages reflect: (1) The mitigation program developed in consultation with the USFWS, and (2) The originally proposed mitigation measures from the previous EIR. The primary difference between (1) and (2) is that the USFWS-developed program includes the purchase and protection of off-site habitat.

In addition to the USFWS recommendations for mitigating habitat loss, Mitigation Package 1 includes supplemental measures to prevent destruction of listed species on the golf course site.

Following the mitigation measures for red-legged frog, California tiger salamander, and western pond turtle, are mitigation necessary to reduce impacts to riparian habitat.

All of these mitigation measures include references necessary to the additional measures necessary to protect water quality, which are discussed in **Section II., D., Hydrology.**

The mitigation packages described below for impacts to California red-legged frog, California tiger salamander, western pond turtle, and riparian habitat could reduce the impacts to the three species and riparian habitat to a less than significant level, if either package is required as conditions of project approval by the City of Morgan Hill.

Mitigation Measures Not Presently Incorporated Into the Proposed Project

The following measures were identified by the City's biology consultant evaluating the project. These measures would reduce biological impacts to a less than significant level, but at this time have not been incorporated into the proposed project design. Should the City of Morgan Hill require one of the packages as a condition of project approval, and if the measures are implemented by the project proponent, the impact would be less than significant.

Red-legged Frog Mitigation Measure Package I

- *Implement USFWS Mitigation Recommendations* - Implement all mitigation measures included in the USFWS letter of July 15, 2003 (Appendix C of this EIR) to reduce impacts to the California red-legged frog, as summarized below:
 - ? Purchase 51 acres of currently unprotected serpentine habitat and fund it's management as habitat in perpetuity.
 - ? Purchase 51.2 acres of currently unprotected California red-legged frog habitat and fund it's management as habitat in perpetuity.
 - ? A riparian buffer with an average width of 70 feet and a minimum width of 30 feet will be planted and maintained on each side of Corralitos Creek and its tributaries, measured from the centerline of the creek.
- *Manage Non-Native Predator Species* - Bullfrogs and large mouth bass are non-native predators that reduce the long-term viability of a California red-legged frog population. Although no bullfrogs or other non-native predators were detected on the project site, a non-native predator management plan that operates for the life of the golf course operation shall be implemented. The main components of this plan are to: 1) monitor all ponds for bullfrogs and other non-native predators on an annual basis, and 2) dry out any ponds that contain bullfrogs for two to three weeks in late September/early October on an annual basis. The timing of the draw down will be phased to ensure that California red-legged frogs will continue to have available suitable wet areas. Pond draining disrupts the two-year development cycle of the bullfrog and should substantially reduce or eliminate successful reproduction by bullfrogs.

- *Vegetated Buffers Around Ponds* - All ponds on site shall have a buffer around the pond perimeter of at least 10 feet in width, consisting of un-maintained dense grasses. This buffer will not be mowed, nor will any chemicals or fertilizers be applied. This buffer is significantly narrower than the buffer cited under Mitigation Package II because Mitigation Package I also provides for substantial additional off-site habitat benefits as described in USFWS letter dated July 15, 2003 that compensate for the smaller on-site buffer areas.
- *Maintain Water Quality of Breeding Ponds/Establish Vegetated Shelves Around Ponds* - Water quality shall be monitored monthly for the duration of the golf course operation by qualified personnel to ensure that golf course run-off does not impact breeding habitat for the California red-legged frog. Shallow water shelves shall be constructed and vegetated with native emergent vegetation around the perimeter of ponds A, B, C, D, E and F. Native emergent vegetation shall be established on at least 50 percent of the perimeter of each pond and shall be approximately 5 to 10 feet in width. These vegetated shelves will provide refugia and breeding habitat for the California red-legged frogs. This vegetation will also provide some biological filtering of run-off water. Catch basins and other storm drain outlets shall not empty into any drainages leading to these ponds, but rather, empty downstream of any waterways associated with potential breeding habitats. If any further grading occurs, silt fences, fiber rolls, or other structures shall be installed to ensure that run-off from the operations does not flow directly into these breeding areas.
- *Water Quality Setback from Corralitos Creek* - Both the USFWS and H.T. Harvey and Associates identified buffers to avoid wildlife disturbance. As stated in **Section II., D., Hydrology and Water Quality** of this EIR, a minimum setback of 50 feet from the centerline of Corralitos Creek and tributaries is necessary to avoid significant impacts to the creek from pollutants in surface runoff.

Red-legged Frog Mitigation Measure Package II

- *Provide a Buffer Zone* -A buffer (an undisturbed area that protects habitat from human activities) of 200 feet shall be maintained from the water's edge of individual breeding ponds and from the centerline of all natural creeks. No human disturbance, landscaping, irrigation, turf areas or lighting shall be placed within the buffer area. No vehicles or other equipment, including lawn mowers, shall operate within the buffer zone. Additionally, if any nocturnal maintenance activities occur on the site, an exclusion fence must be installed 200 feet from the water's edge and maintained to avoid "take" of California red-legged frogs from vehicular activities since frogs may range widely from aquatic habitat at night.
- *Manage Non-Native Predator Species* - Bullfrogs and large mouth bass are non-native predators that reduce the long-term viability of a California red-legged frog population. Although no bullfrogs or other non-native predators were detected on the project site, a non-native predator

management plan that operates for the life of the golf course operation shall be implemented. The main components of this plan are to: 1) monitor all ponds for bullfrogs and other non-native predators on an annual basis, and 2) dry out any ponds that contain bullfrogs for two to three weeks in late September/early October on an annual basis. The timing of the draw down will be phased to ensure that California red-legged frogs will continue to have available suitable wet areas. This draining of the ponds disrupts the two-year development cycle of the bullfrog and should substantially reduce or eliminate successful reproduction by bullfrogs in this region of the ranch.

- ***Maintain Water Quality of Breeding Ponds/Establish Vegetated Shelves Around Ponds*** - Water quality shall be monitored monthly for the duration of the golf course operation by qualified personnel to ensure that golf course run-off does not impact breeding habitat for the California red-legged frog. Shallow water shelves shall be constructed and vegetated with native emergent vegetation around the perimeter of ponds A, B, C, D, E and F. Native emergent vegetation shall be established on at least 50 percent of the perimeter of each pond and shall be approximately 5 to 10 feet in width. These vegetated shelves will provide refugia and breeding habitat for the California red-legged frogs. This vegetation will also provide some biological filtering of run-off water. Catch basins and other storm drain outlets shall not empty into any drainages leading to these ponds, but rather, empty downstream of any waterways associated with potential breeding habitats. If any further grading occurs, silt fences, fiber rolls, or other structures shall be installed to ensure that run-off from the operations does not flow directly into these breeding areas.
- ***Water Quality Setback from Corralitos Creek*** - Both the USFWS and H.T. Harvey and Associates identified buffers to avoid wildlife disturbance. As stated in **Section II., D., Hydrology and Water Quality** of this EIR, a minimum setback of 50 feet from the centerline of Corralitos Creek and tributaries is necessary to avoid significant impacts to the creek from pollutants in surface runoff.

California Tiger Salamander Mitigation Measure Package I

- Mitigation Measure Package I as described above for the California red-legged frog would also provide adequate mitigation for the California tiger salamander.

California Tiger Salamander Mitigation Measure Package II

- In addition to the measures described above in Mitigation Measure Package II for the red-legged frog, large woody debris or stones shall be placed within the 200-foot buffer to encourage burrow construction by ground squirrels and/or gophers to improve upland aestivation habitat for California tiger salamanders.

Western Pond Turtle Mitigation Measure Package I

- Mitigation Package I as described previously for the California red-legged frog would also provide adequate mitigation for western pond turtles.

Western Pond Turtle Mitigation Measure Package II

- Mitigation Package II as described above under California red-legged frog would also provide adequate mitigation for western pond turtles.

Riparian Habitat

- The riparian habitat and drainages offer different wildlife values, therefore, a 25-foot setback from the lower-quality riparian habitat, and a 100-foot setback from the higher quality riparian habitat is necessary to protect the remaining riparian corridor that is well vegetated and of higher quality;
- The setback area should be established as a riparian buffer planting zone with native trees and shrubs, such as native oaks and willows. The landscape plans should be reviewed and approved by a qualified botanist or restoration biologist;
- Lighting within the setback areas should be avoided. Lighting associated with the proposed project should be designed, sited and shielded to minimize light and glare impacts to wildlife within the riparian corridor; and
- Human access should be restricted within the riparian corridor. Physical barriers should include either split rail fence or other suitable structures that are effective at restricting access to golfers. Informational signs explaining the sensitivity of riparian corridors should be posted particularly near possible access points.
- It should be noted that the riparian corridor setbacks described above are different than the creek setbacks described previously to protect special-status species (red-legged frog, tiger salamander, and western pond turtle). The riparian corridor setbacks (100 feet for high quality riparian habitat and 25 feet for low quality riparian habitat) are measured from the edge of the riparian corridor. The setbacks for impacts to special-status species are measured from the centerline of the creek channels.

D. HYDROLOGY AND WATER QUALITY

The following discussion is based upon an hydrology, water quality, and water supply report prepared for the project by *Questa Engineering Corporation*, on July 21, 2001. The report was prepared after the grading for the existing 18-hole golf course was completed. A copy of the report is included as Appendix D of this EIR. *Questa Engineering* was retained by the EIR consultant and the City of Morgan Hill. Some of the information reviewed in this section was prepared by other technical consultants who were retained by the project proponent. The information prepared by the project proponent and submitted to the City of Morgan Hill is available for public review during normal business hours.

1. Existing Setting

Drainage

The project site is located in the Llagas Creek watershed, which drains southerly through southern Santa Clara County. Llagas Creek eventually joins the Pajaro River near Gilroy, which ultimately discharges to the Pacific Ocean near Watsonville at the border between Monterey and Santa Cruz Counties. The Llagas Creek watershed encompasses an area of approximately 200 square miles. The project site lies at the base of the foothills that form the eastern side of the watershed, and drains to Corralitos Creek and San Martin Creek, which are seasonal tributaries of Llagas Creek. Land uses on the eastern side of the Llagas Creek watershed primarily include irrigated agriculture, grazing, and rural residential-suburban development.

The northern half of the project site is drained by Corralitos Creek, which runs east-to-west through the site. Three branches of Corralitos Creek join together on the project site. The total drainage area of Corralitos Creek at and above the project site, under pre-development conditions, was approximately 686 acres. Corralitos Creek leaves the property at Foothill Avenue in a concrete box culvert, which measures approximately 12 feet wide by eight feet deep. Approximately 150 feet upstream of the box culvert (on the project site) there is a concrete drop structure that extends across the creek; it was apparently installed some time in the past to stabilize and protect the creek channel against erosion. Immediately downstream of the concrete drop structure there is evidence of erosion on the northern streambank, which is a potential threat to the stability of the drop structure. A small part of the project site along the northern property boundary (approximately 7 acres) drains toward the intersection of Maple Avenue and Foothill Avenue. Runoff from this portion of the site drains under Foothill Avenue in a 12-inch corrugated metal pipe culvert (cmp) and continues in a westerly direction along Maple Avenue.

There are no defined drainage channels on the southern half of the project site, where the runoff drains generally via overland flow to the roadside drainage ditch on Foothill Avenue which empties into San Martin Creek. The total drainage area within the southern portion of the site under pre-development conditions was approximately 135 acres. This included a contributing watershed area above the project site of approximately 43 acres; most of that area is open grassland. Available maps (J.R. Garcia/Civil Engineer, 1972) indicate that, in the pre-project conditions, runoff from approximately 44 acres in the center of the property, including most of the buildings and paved areas, was collected and drained in a northerly direction to Corralitos Creek via a storm drain system. This storm drain has apparently been removed as part of the construction of the golf course. Now, the drainage in the southern

part of the site (including 24 of the 44 acres in the center) is all routed to a series of five on-site ponds, which have overflow/outfall pipes to the drainage ditch along the east side of Foothill Avenue.

The drainage ditch on Foothill Avenue is an earthen channel, approximately two feet deep by six feet wide along the frontage of the project site. The channel drains in a southerly direction along Foothill Avenue until it reaches San Martin Creek, which is located about 3,500 feet south of the project site. The Foothill Avenue drainage crosses under Robin Lane in two 12-inch x 21-inch elliptical corrugated metal pipes (cmp), and through several other private driveway culverts. Near San Martin Creek, the channel increases in size to about three and one-half feet deep and eight feet wide. Based on the cross-section dimensions and channel slope, the capacity of this roadside drainage channel is estimated to be about 30 cubic feet per second (cfs) at the project site, about 24 cfs at the Robin Lane culverts, and about 34 cfs near its confluence with San Martin Creek.

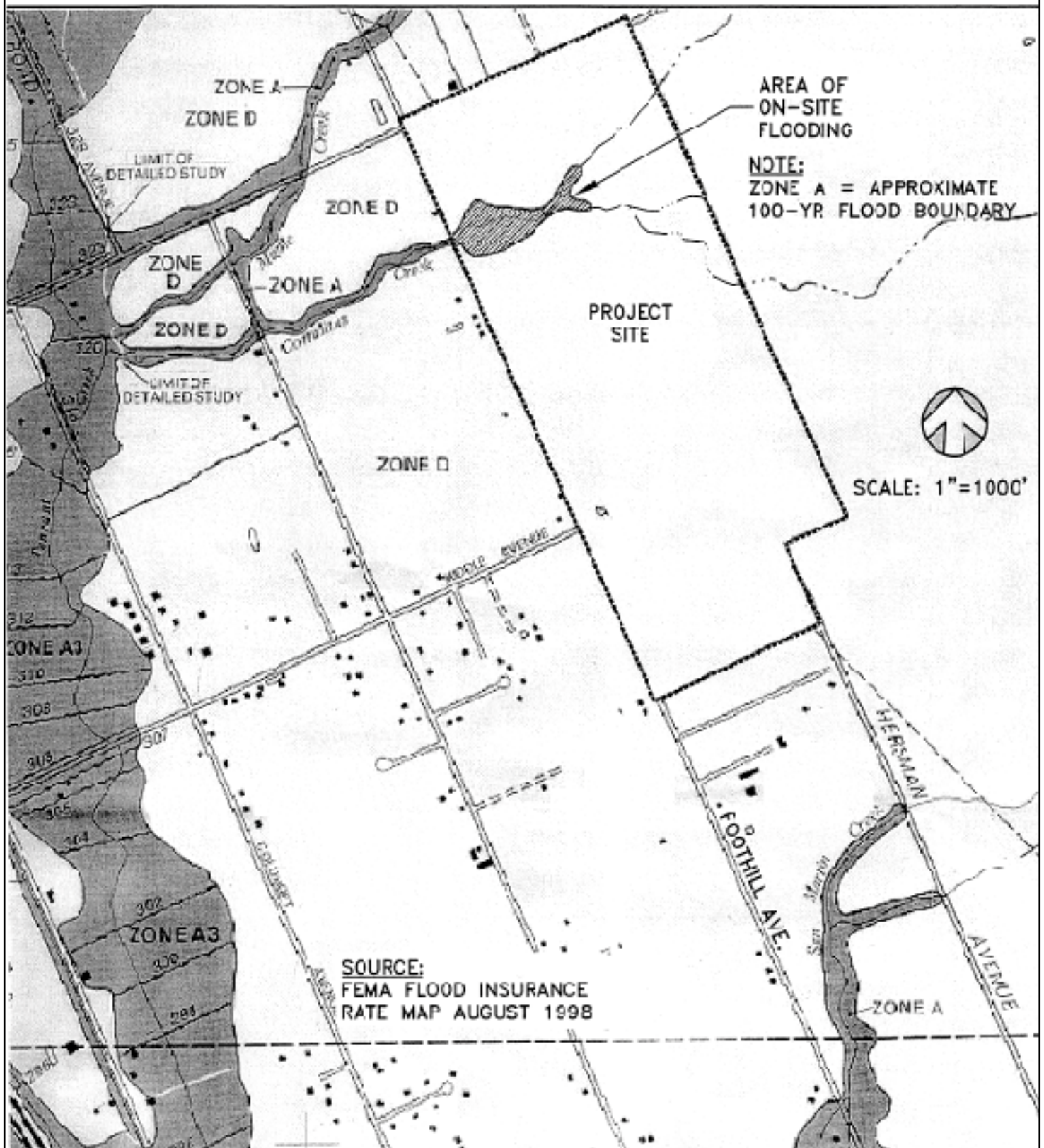
Flooding

Approximately five acres of the project site is mapped by FEMA as being within the 100-year floodplain of Corralitos Creek, as shown on Figure 8 on the following page. The flood-prone area encompasses the area in and adjacent to the creek channel immediately upstream of the concrete box culvert at Foothill Avenue. The flooding appears to be associated with backwater conditions, due to the constriction of flow by the Foothill Avenue box culvert. South of the project site, the FEMA maps indicate that Foothill Avenue at San Martin Creek is within flood hazard Zone A, an area prone to the flooding hazards of the 100-year flood. During a site inspection in early June 2001, the two 42-inch cmps at the Foothill Avenue crossing of San Martin Creek were under water, apparently due to a blockage of some type in the culvert or immediately downstream.

Surface Water Quality

According to the Non-Point Source Division of the Santa Clara Valley Water District (SCVWD), there is no available surface water quality information for Corralitos Creek or San Martin Creek, and data for Llagas Creek downstream of the project site is also very limited. Given the current land uses in the project vicinity, the quality of the storm water runoff reaching Corralitos Creek and San Martin Creek is expected to be typical of mixed rural residential and agricultural watersheds. Water collected in the storm drainage system can be expected to contain varying amounts of non-point source pollutants⁵ associated with low-density suburban uses (i.e., roadway/street contaminants, litter, residential maintenance/landscaping chemicals, etc.) and agricultural activities (i.e., pesticides, herbicides, insecticides, sediment from exposed soils, fertilizers, etc.). Irrigation and precipitation can carry these non-point pollutants into downstream drainages.

⁵ Nonpoint source pollution includes materials and chemicals which enter waterways from a variety of sources. Unlike water pollutants that come from discrete "point" sources such as industrial facilities or sewage treatment plants, nonpoint source pollutants are washed by rainwater and other means from streets, construction sites, and agricultural areas.



FLOOD MAP

FIGURE 8

Groundwater

The project site is located along the eastern edge of the Llagas Groundwater Basin, which serves as the principal source of domestic and agricultural water supply for the region. Groundwater levels at the project site are estimated to be approximately 100 feet beneath the ground surface (along Foothill Avenue). There are four high yielding wells on the project site that draw water from this groundwater basin and serve as the source of irrigation water for the golf course. Domestic water supply is also currently obtained from the on-site wells. Due to the high nitrate concentrations in the well water, in 2001 the project proponent applied to the Santa Clara County Health Department for a well drilling permit to install a new well for the domestic supply. To date no new well has been installed, and the project proponent indicates that bottled water is supplied for drinking water. Other residences in the vicinity obtain their domestic water supply from the groundwater basin.

The Santa Clara Valley Water District (SCVWD) has management responsibilities for the groundwater basin and operates a series of recharge facilities to augment natural rainfall-recharge processes. These artificial recharge facilities include the Main Avenue Ponds, Madrone Channel, Church Ponds, and San Pedro Ponds at Hill Road. The SCVWD also monitors and maintains records on groundwater levels in the basin.

Water quality conditions in the Llagas Groundwater Basin are also monitored by the SCVWD through sampling of private and municipal water wells. The District has data from approximately 250 wells. Data for 31 wells in the vicinity of the project site were obtained and reviewed by the project hydrologist. The groundwater quality data in the project vicinity indicate elevated concentrations of nitrate that severely restricts its suitability for domestic or municipal uses. The nitrate concentration was found to range from 1 mg/L to 103 mg/L, with the average being about 68 mg/L. For comparison, the drinking water standard (Title 22, California Code of Regulations) is 45 mg/L. Only three of 31 wells had a nitrate concentration below 45 mg/L. The one well with several years of sampling data indicates a distinct increase in nitrate concentration over the past 13 years, from 26 mg/L to 49 mg/L. Additionally, an analysis of the four on-site wells in March 2002 showed nitrate concentrations ranging from 47 to 85mg/L. Because of the existing high concentrations of nitrate in the groundwater, the SCVWD is very concerned about increased nitrate loading in the Llagas basin area from fertilizers, wastewater discharges, or other sources⁶.

Grading

The construction of the existing 18-hole golf course required earthwork and grading on the project site. Grading was done to form the tees and greens, and there was also considerable cut and fill required to contour the fairways throughout the site, to form "mounds" between or alongside fairways, and to create the several on-site ponds. The grading also included the construction of a large earthen berm along the western edge of the site bordering Foothill Avenue. Grading to create the golf course is estimated to have been in excess of 500,000 cubic yards.

The soil was also modified during the site grading operations. Tees and putting greens have been modified with sandy imported materials, soil amendments, and subsurface drainage

⁶Letter from the SCVWD, Comments on DEIR, dated March 13, 2003.

works. The “As-built Drainage Plan” (dated August 18, 2003 and prepared by Ourada Engineering) shows the location and size of surface and sub-surface drain pipes that were installed throughout the golf course; the drains range from four to 24 inches in diameter. Grading of the golf course fairways and rough may have involved importation of soil, and a fertilization program; but no details are available on what was done. Table 2 summarizes the breakdown of the land uses on the site in the existing developed condition, as determined from the various background materials provided by the project proponent.

Table 2	
Land Use Summary for Institute Golf Course	
Land Use	Acres
Buildings and Roads	4.0
Tees and Greens	6.0
Sand Traps	3.0
Ponds and Streams	6.3
Fairways	47.0
Rough	74.0
Sub-total	141.3
Remainder (Native)	54.0
TOTAL	193.7

Drainage Facilities

Construction of the existing 18-hole golf course has altered the existing hydrology of the site through the installation of the artificial pond-stream system and elimination of the former storm drain system for the central building and parking area. According to as-built topography and site observations, construction of the existing golf course included alteration of a portion of a branch of Corralitos Creek, which has been converted to fairway turf on hole number three. According to the August 18, 2003, “As-built Drainage Plan” for the golf course by Ourada Engineering, the golf course drainage system includes a network of numerous surface and subsurface drains that either outfall directly to Corralitos Creek or to one of the seven (A-G) on-site lakes. Lakes A, B, and C are connected, and have a 24-inch outfall (from Lake A) to the roadside drainage ditch on Foothill Avenue. Lake E drains to Lake D, which has an 18-inch diameter outfall to the Foothill Avenue drainage ditch. Lake F has a gated six-inch diameter outfall pipe into Corralitos Creek. Lake G is located between two branches of Corralitos Creek in the northeast corner of the site and has a six-inch outfall to Corralitos Creek.

Existing storm drainage facilities in the project area are located along Foothill Road. The existing drainage ditches and culverts that border the project site and serve the existing road and surrounding properties remain in place; no provisions have been made to upgrade them to accept any changes in runoff from the golf course.

Ancillary Golf Course Facilities

The existing golf course includes two design/operational features that relate specifically to hydrology and water quality. These include the use of a wastewater treatment-recycle system for the wash water from vehicle cleaning areas and a water treatment and recirculation system for some of the pond water.

Wastewater Treatment-Recycle System

The existing golf course facilities include a wastewater treatment-recycle system located in the maintenance area to clean mowers and other equipment that may be contaminated with golf course chemicals, oils and grease. This is a total recycle system that incorporates various treatment processes (e.g., high-pressure sprayers, degreasers, settling, filtration, physical-chemical adsorption) to collect the equipment rinse water, cleanse it and recycle it for continual use.

Lake System

The existing golf course includes a series of seven artificial water bodies (A through G) that serve as golf course amenities and an equalizing reservoir for the irrigation system (refer to Figure 3). All seven lakes receive drainage from the golf course. According to the system plans by Waterscapers (1998) and Aquatic Environments (2000), lake water treatment was to have included aeration, utilizing an activated oxygen system, and diffusers on the bottom of the lakes and all of the lakes are lined with PVC membrane that is 20 millimeters thick. Lake G was also to have a Gravel Bed Biological Filter System at the bottom of the lake to remove nitrogen. Based on site inspection and discussions with the maintenance supervisor, the existing lakes on the golf course do not conform to the plans provided to the City of Morgan Hill by the project proponent. None of the lake water treatment systems were installed and construction documentation is not available to confirm if and how the lakes were lined. Currently, the lakes only provide wet detention basins for collection and potential treatment through sedimentation, vegetative uptake, and bacterial composition. The lakes are raked to remove vegetation, which further reduces their effectiveness for water quality treatment. Based on observations on October 1, 2003, all of the lakes are unusually high in water clarity, with no evidence of any algal growth in the water. The project proponent has not disclosed that any chemicals are added to the lakes for algae or water quality control.

2. Hydrology and Water Quality Impacts

Thresholds of Significance

For the purposes of this project, a hydrologic impact is considered significant if the project will:

- ? substantially degrade or deplete groundwater resources; or
- ? increase the potential for flood related property loss or hazard to human life from the 100-year flood or from levee or dam failure; or
- substantially impede or redirect flood flows; or

- ? significantly increase peak storm water runoff in a manner which would result in flooding on-or off-site or substantially exceed the capacity of existing or planned storm water drainage systems; or
- provide substantial additional sources of polluted runoff or otherwise substantially degrade surface or ground water quality.
- violate any water quality standards or waste discharge requirements; or
- ? substantially degrade water quality.

On-Site Flooding

A portion of the project site is mapped within the 100-year flood plain of Corralitos Creek, immediately upstream of Foothill Avenue. The existing golf course improvements located in this area are subject to potential damage from inundation. Hydrologic and hydraulic analysis, however, has confirmed that the structures potentially at risk are located above the 100-year flood elevation.

Review of the “As-built Drainage Plans”, field reconnaissance, and discussions with the golf course maintenance superintendent, shows that an area of the golf course itself is subject to on-site flooding, due to inadequate drainage. The third hole of the golf course has been graded to create a depression that collects runoff from approximately 14 acres of the golf course. Several catch basins in the depression collect and transport runoff to Corralitos Creek. The drainage system is undersized, however, and shallow flooding occurs. Although the shallow flooding is not a public safety hazard, it may result in water quality impacts from frequent flooding of maintained turf. This impact is discussed later in this section.

- ? **Golf course encroachment into the floodplain will not result in flood related property loss or a hazard to human life. (Less than Significant Impact)**

Off-Site Flooding

The development of the golf course has resulted in the conversion of land surface conditions and reconfiguration of the drainage patterns on the project site. The conversion of the site to a golf course is estimated to have little effect on the overall rate of storm water runoff from the site as compared to pre-development conditions. Although the conversion of the land surface to the existing golf course has not increased the rate of runoff from the project site, the modification of the site’s drainage pattern has substantially increased the amount of water discharged to the drainage ditch along Foothill Avenue during storm runoff events. Under pre-development conditions, approximately 24 acres of land near the center of the golf course drained to Corralitos Creek via a storm drain system. Under existing conditions, this runoff is now routed to the drainage ditch along Foothill Avenue through the pond system on the south side of the golf course. The water discharged to the drainage ditch eventually flows into San Martin Creek. The existing drainage ditch along Foothill Avenue has limited capacity, and to the south of the site at San Martin Creek, Foothill Avenue is currently mapped as being within the 100-year flood hazard zone. Below is a discussion of local flooding observations made by the City’s consulting hydrologist and the drainage analysis prepared by the project proponent’s hydrologist.

Local Flooding Observations

Interviews with neighbors in the project area conducted by the City's consulting hydrologist indicate that in the winter of 1999 (subsequent to the changes in the golf course) water flooded the Foothill Avenue drainage ditch fronting the project site and flowed under the road surface (within the sub-base) onto properties on the west side of Foothill Avenue, south of the project entrance road. The project proponent has indicated that drainage problems at Foothill Avenue on the north side of the project entrance road were due to an undersized driveway culvert that has since been replaced. This would not explain, however, the flooding and drainage problem that occurred on the south side of the entrance road culvert.

Project Proponent's Drainage Analysis

A post-construction hydrologic and hydraulic analysis of the project and associated watershed was completed by *Mattern & Associates*, dated May 24, 2002 and provided to the City shortly thereafter. In reviewing the modeling by *Mattern & Associates*, *Questa Engineering* agreed with assumptions concerning soil, rainfall, intensity, and runoff transformations. Problems were identified with the analysis of the Foothill Avenue drainage related to assumptions for both the existing (developed) condition and pre-project conditions for watershed area conditions that affect the conclusions reached by *Mattern & Associates*.

One problem is that the *Mattern and Associates* report did not include runoff from the eight acres of golf course area that are collected in Pond G in their analysis of project conditions. The lake is equipped with an outfall pipe to Corralitos Creek and no calculations are provided to establish the lowered water level conditions that need to be maintained in this lake during the winter rainy season to assure that no overflow occurs. While the amount of runoff from the eight acres during storm conditions would not be sufficient to change the overall conclusion that post-development flows to Corralitos Creek will be reduced by the project, the model assumptions are only correct if the water level in Pond G is lowered during the winter to a specific level related to accommodate all runoff. Additional calculations, a specific pond water level management plan, and a commitment by the golf course operators to implement the management plan are required to confirm the conclusions.

Another issue has to do with the assumptions related to the pre-project conditions. The model by *Mattern and Associates* does not account for the existence of approximately three acres of golf course lakes that were part of the former golf course. These lakes appear prominently on the current USGS quadrangle map and the 1992 aerial photograph of the site included with the *Mattern and Associates* report. The lakes were all located in the southwestern portion of the site in the area that drains to Foothill Avenue. *Mattern & Associates* model does not account for detention storage effects provided by these three pre-project condition lakes. In the project conditions, however, *Mattern & Associates* includes and accounts for the detention effects of the three new lakes (A,B, and C) in this area, which cover approximately 1.7 acres. In the model of project conditions, it is solely the detention effects of these three new lakes that are responsible for the projected decrease in peak runoff, in spite of the addition of nearly 20 acres of additional drainage area. Had the analysis of pre-development conditions also accounted for the three acres of lakes that formerly existed, the pre-development peak flow estimates would have been lower than indicated by *Mattern & Associates*, due to flow attenuation effects of the former lakes. Consequently, the model overestimates the pre-development peak flows, which is then used as a basis for concluding, incorrectly, that the peak runoff from the project at Foothill Avenue and San Martin Creek

will be reduced by the project. In fact, a more accurate model of the pre-development conditions, including the effects of the lakes, would reveal that the flows from the project will be increased by the project on Foothill Avenue, and will exacerbate existing drainage and flooding problems off-site. This is a significant impact.

A third issue has to do with the assumption by *Mattern and Associates* that all runoff from a 24-acre drainage area that collects in Ponds D and E is assumed to be fully retained, and thus is excluded from the runoff to either Corralitos Creek or the Foothill Avenue-San Martin Creek drainage. Under the description of the project conditions model, it is stated that Pond D is operated as a retention pond from which there is no overflow to the drainage along Foothill Avenue. Site observations and project proponent-supplied drainage plans, however, indicate that Pond D has an 18-inch diameter overflow that drains to a poorly defined roadside ditch just south of the project entrance. This is also the area where local residents reported flooding problems in the winter of 1999.

While it is possible that Pond D could potentially be operated as a retention pond, neither the *Mattern & Associates* report nor any other information supplied by the project proponent demonstrates a plan for doing this. There are no supporting calculations, operating criteria, or other documentation to verify that sufficient retention capacity is provided in Pond D during the winter months to assure 100-percent retention of all runoff from the contributing 24-acre drainage area. In fact, there is contrary evidence from an aerial photo of the golf course provided by the project proponent, dated December 22, 1999. This aerial photo shows Pond D to be in a "full" condition at the start of the winter rainy season, and no indication that the water level was drawn down to provide capacity for winter runoff.

The amount of retention storage required to validate Mattern's assumption can be estimated, based on capturing rainfall-runoff from a 60-day wet weather period. This would be similar to the approach used in the model by *Mattern & Associates* to estimate retention of runoff in a pond located in the Corralitos Creek watershed above the project site. Pond D has a surface area of approximately 1.8 acres; therefore, the pond water level would need to be lowered by 12 to 15 feet in the winter months to accommodate the estimated 100-year winter season runoff. Without this level of drawdown in Pond D, runoff to Foothill Avenue drainage could occur during peak runoff events and exacerbate the drainage problems in the project area. This is a significant impact.

Based on this information and the observed drainage problems during a relatively normal rainfall year (1999), *Questa Engineering* concluded that the project will have a significant impact on local flooding at Foothill Avenue that will affect neighboring properties as well as the roadway itself. Farther to the south along Foothill Avenue, the increase in runoff will also contribute to more frequent and more extensive flooding at Robin Lane and at San Martin Creek, where there is an existing mapped 100-year flood hazard zone affecting Foothill Avenue.

? **The increased runoff resulting from development and continued operation of the existing 18-hole golf course will exacerbate previous conditions, causing worse and more frequent flooding problems on the roadway and on other properties than would be the case without the golf course. (Significant Impact)**

Soil Erosion

Construction of the existing 18-hole golf course and associated facilities involved substantial earthwork for the driveways, drainage pipelines, trenches, ponds, and general site grading. Grading exposes surface and sub-surface soils to the erosional forces of runoff. The golf course has already been constructed; however, additional grading activity is anticipated as part of on-going golf course maintenance, demolition of the existing restaurant building and construction of the Mathematics Institute headquarters in its place, and/or implementation of identified mitigation measures. Consequently, the threat of construction-related erosion remains.

The lower portions of the project site are gently sloping with relatively low erosion hazard. However, a substantial part of the golf course is located in relatively steep upland areas where erosion hazards are moderate to high. Also, portions of the golf course facilities were built to encroach upon the riparian corridor of the Corralitos Creek channel that runs through the project site. The close proximity of construction activities to the creek channel increases the risk of erosion and sedimentation impacts on the creek environment. There is currently evidence of streambank erosion immediately downstream of the concrete grade control structure on Corralitos Creek. Although most golf course construction has been completed, additional work is likely to be required (including restoration of the riparian corridor), which may involve grading activity and the associated risks of soil erosion.

Soil erosion can cause numerous types of impacts. Eroded soil contains nitrogen, phosphorus, and other nutrients. When carried into water bodies, these nutrients can stimulate algae growth that reduce water clarity, deplete oxygen and create odors. Accumulated sediments can also lead to the obstruction of drainage facilities (e.g., culverts) increasing the potential for overtopping and localized flooding. The greatest soil erosion hazard will exist during and immediately following construction. The completed project should cause minimal long term erosion and sediment discharges to downstream water bodies, due to the addition and maintenance of turf grass and other landscaping in the areas of soil disturbance.

? **Future grading may cause substantial soil erosion on the site. (Significant Impact)**

Water Quality

There are four sources of non-point source pollution from the existing 18-hole golf course and proposed Mathematics Institute that could impact surface and/or groundwater quality in the project area: (1) parking and maintenance facilities; (2) nitrogen loading from application of turf fertilizers and irrigation water use; (3) pesticide and herbicide use; and, (4) construction activities. Impacts from each of these sources is addressed separately below.

Parking and Maintenance Facilities

The proposed Mathematics Institute and on-going operation and maintenance of the golf course on the project site will involve vehicle activity on paved areas, as well as equipment maintenance and washing, as part of the normal day-to-day operations. Runoff from these vehicle use areas can be expected to contain non-point source pollutants comparable to that from any other urban land use. The type of pollutants contained in street/parking lot runoff

includes oil, grease, heavy metals, and the particles from wearing of tires, brake linings and asphalt pavement. General litter and debris can also be anticipated, as well as paint and solvent residue associated with maintenance activities. If washed directly into the local drainages, these surface contaminants could occur in detectable amounts downstream in Corralitos Creek and San Martin Creek, and ultimately in Llagas Creek.

The golf course operations include two features that will reduce the potential for discharge of surface pollutants. These include: (1) the use of a wastewater treatment-recycle system (NOVACHEM) for the wash water from vehicle cleaning areas; and (2) routing of site runoff through a system of on-site lakes (i.e., wet detention ponds) where, with proper design, pollutant removal can occur via sedimentation, vegetative uptake, and bacterial decomposition. Documents provided by the project proponent indicate that a lake water filtration and recirculation system (including aeration and ozonation) was originally planned; however, this has been deleted from the project design. The NOVACHEM system and the on-site lakes are beneficial water quality control measures, but they do not address all of the potential surface runoff pollution issues posed by the golf course. Specifically:

- The wash-recycle system is generally for maintenance equipment (e.g., mowers); runoff from parking areas and from other vehicle maintenance and washing areas is not addressed.
- During runoff periods treatment through the lake system will be limited in capturing and removing surface runoff pollutants washed from the golf course due to the lack of suitable buffer areas around the lakes. All of the lakes are constructed with "sharp" edges, devoid of any vegetation. According to the project proponent's biological consultant, the golf course maintenance crews routinely rake the edges of the lakes for the specific purpose of removing lakeside vegetation and algae.

As designed, the golf course drainage system eliminates one of the primary benefits of stream and lake riparian zones, which is to provide filtering and removal of pollutants that may be carried into the stream with runoff from adjacent lands. Pollutant removal in riparian buffer areas occurs as particulate matter is trapped during passage of runoff flow through dense, fine herbaceous vegetation, through uptake of some soluble pollutants by plants, and by incorporation of certain pollutants, particularly metals, into the soil. There are other measures or "Best Management Practices" (BMPs) which are commonly applied to intercept and capture pollutants from vehicle use areas (e.g., storm water interceptors, grassed-infiltration swales, etc.) that are also not incorporated into the project design.

? **The ongoing operation of the golf course as it is constructed will continue to result in a net increase of non-point source pollutants entering surface waters. (Significant Impact)**

Nitrogen Loading

Nitrogen is the primary component of turf grass fertilizer and nitrogen is already present at high concentrations in the local groundwater that will be used for turf irrigation. Nitrogen poses potential groundwater and surface water quality concerns to the extent that excess nitrogen is applied to the turf grass beyond that which is utilized by the vegetation. The project proponent has not prepared a management plan that indicates how the nitrogen

application rates are determined and monitored to meet minimum turf requirements while also protecting against excessive loading to groundwater.

Golf course greens are fertilized regularly and other areas are fertilized on an as-needed basis. The average yearly nitrogen application rates for a golf course are approximately one pound per 1,000 square feet on rough, three pounds per 1,000 square feet on fairways, and five pounds per 1,000 square feet on tees and greens. The rough areas may undergo a one-time fertilization during construction. For the proposed golf course, which has approximately 128 acres of turf grass, the distribution and annual rates of fertilizer application, based on these averages, are shown in Table 3.

Table 3		
Fertilization Rates		
Golf Course Area	Rate	Total Pounds Nitrogen
Tees and Greens	6 acres @ 5 lbs/1,000 ft ²	1,307
Fairways	47 ac @ 3 lbs/1,000 ft ²	6,142
Rough Areas	75 ac @ 1 lb/1,000 ft ²	3,267
	TOTAL	10,716 pounds per year

Questa's review of information supplied by the project proponent regarding current fertilizer use on the golf course, found that the amount of nitrogen applied to the tees and fairways (on an annual basis) is within the estimates presented above. No information was supplied regarding fertilizer use on the greens and rough areas; it is reasonable to assume that nitrogen fertilizer applied to these areas is also consistent with the above assumptions, which reflect normal use rates for golf course turf.

Groundwater Impacts

As the primary component of turf grass fertilizer, nitrogen poses potential groundwater quality concerns to the extent that the nitrogen applied to the golf course exceeds the amount required or utilized by the vegetation. Nitrogen losses to subsoils and groundwater are in the form of nitrate which can contribute to human health problems (associated with drinking water) and general degradation of water quality. Groundwater contamination with nitrogen occurs when nitrogen is not taken up by the plants, absorbed by the soil, or volatilized, and slowly migrates to groundwater.

The existing 18 hole golf course uses approximately 491 acre-feet of water per year. All of the water for the existing golf course comes from on-site wells. Based on well water monitoring data provided by the Santa Clara County Water District, the average groundwater nitrate concentration in the project vicinity is approximately 68 milligrams per liter (mg/L). Additionally, in March 2002, the project proponent took water samples for the four on-site wells and had the samples analyzed for nitrate. The average concentration for the four on-site wells is approximately 59mg/L.

Pond D serves as the irrigation reservoir for the golf course. Water is pumped into the upper portion of the pond and withdrawn by the irrigation pumps from near the bottom of the pond.

Based on the nitrate sampling results for Pond D and directly from the irrigation system, there is an apparent significant nitrate reduction (about 60%) that occurs in Pond D. According to the project proponent's data, the average nitrate concentration for Wells 1, 2, and 3 is about 50 mg/L, and the average for samples taken from Pond D and the irrigation system is about 20 mg/L. The nitrate reduction is most likely attributable to denitrification in the deeper, anoxic zones of Pond D, which is estimated to be more than 30-feet deep. The volume of the pond is estimated to be about nine million gallons, which should provide roughly 20 days of residence time at the average irrigation flow, estimated to be about 437,500 gpd. Given these conditions, the apparent nitrate reduction of 60% is not unreasonable. The nitrate removal in the pond, however, appears to be happenstance, since the project proponent has not supplied any design or operating information indicating how the process can be controlled to achieve consistent results. Moreover, although the results are promising, the sampling data obtained thus far are insufficient to confirm the level of nitrate reduction that can be maintained throughout the year and over time. Accordingly, for purposes of project analysis, it can only be concluded that significant reduction of well water nitrate concentrations via detention in Pond D is likely, such that the nitrate concentration of golf course irrigation water would be in the range of 20 to 50 mg/L.

Assuming that the irrigation water is applied to the golf course (and associated landscaping) at the reported rate of about 491 acre-feet per year, the yearly nitrogen loading to the golf course from irrigation water would be in the range of approximately 6,000 to 15,000 pounds. This means that the nitrogen content in the irrigation water would satisfy a substantial portion, and possibly all, of the projected total fertilizer requirement (10,716 lbs/year) for the golf course.

The project proponent has not indicated any plan to account for the nitrogen fertilizer value of the irrigation water. Therefore, it is likely that the existing golf course is being over-fertilized. Seepage from the existing golf course is estimated to contribute nitrate in the range of 45 to 96 milligrams per liter. Water seepage from previous uses on the site (e.g., leachfields, farming, domestic animals, livestock, and the nine-hole golf course) are estimated to have contributed nitrate to the ground water basin in the range of 19 to 38 milligrams per liter. Therefore, the existing golf course can be expected to result in a substantial long-term rise in ground water-nitrate concentration immediately beneath the project site. This is a significant impact.

? On-going use and maintenance of the golf course will substantially increase existing nitrogen levels in the groundwater. This could adversely affect nearby drinking water wells, as well as the aquifer as a whole. (Significant Impact)

Surface Water Impacts

A variety of factors control nitrogen transport from turf areas to surface waters, including climate, rainfall intensity and duration, soil texture, management practices, plant uptake ability, volatilization, and soil moisture conditions.

For this area of impact, the primary concern is that the nitrogen fertilizer will be transported by surface runoff from the area of application, before it is absorbed and utilized by the vegetation. The increased nitrogen delivered to a surface water body can serve as a nutrient

enrichment, causing stimulation of aquatic plant growth and, possibly, increased eutrophication of the water body⁷.

The project proponent has supplied information documenting that grass tissue sampling for nitrogen content was conducted in the initial development of the golf course turf areas; however, other information regarding plans or practices to minimize the amount of nitrogen loading (and potential losses to the environment) are lacking.

Golf course construction has resulted in the encroachment of fairways closely upon the riparian corridor of Corralitos Creek, the conversion of a section of natural stream channel to a fairway with turfgrass, numerous golf course drains (from fairways, tees and greens) discharging directly to or adjacent to the Corralitos Creek channel, and other portions of the managed turf draining directly into the on-site lakes without benefit of any filtering or buffer area. Specific areas of concern include the following:

- All of the on-site lakes are provided with outfall lines to either Corralitos Creek or to the roadside ditch along Foothill Avenue, which eventually drains to San Martin Creek and Llagas Creek.
- Where the golf course drains directly to the stream channels (rather than through the lake system), in many cases no buffer is provided between the edge of the turf and the edge of the stream bank. In one instance (north side of Corralitos Creek at Hole #3) a side tributary has been converted to turf grass, such that the stream flows directly over and through areas where golf course chemicals are applied.
- Several golf course drains from tees, greens and fairway sections discharge directly to the stream channel, again acting as a direct conveyance for golf course chemicals. An example of this is the sub-drain for the 6th Green. Another example is the drainage system for the northwestern corner of the golf course, which has several catch basins situated in a depression in Fairway #3, which is frequently flooded because of inadequate capacity in the storm drain. The outfall lines consist of two 6-inch diameter pipes, which is insufficient for a drainage area of approximately 14 acres. Flooding of the fairways increases the potential for leaching of golf course chemicals from the grass, which is routed for direct discharge to the streambank of Corralitos Creek.

Nitrogen leaving the project site by these routes is an unnecessary nutrient addition to downstream receiving waters (Llagas Creek). These features of the golf course pose a threat of excess nitrogen discharge to surface waters. This is a significant impact.

? **On-going use and maintenance of the golf course will result in potentially higher nitrogen loading to downstream surface waters, including Corralitos Creek, San Martin Creek and Llagas Creek. (Significant Impact)**

⁷Eutrophic waters are rich in mineral and organic nutrients that promote a proliferation of plant life, especially algae, which reduces the dissolved oxygen content and often results in the death of other organisms in the pond or lake.

Pesticide and Herbicides

The demand for turf grass of high quality and uniform playing surface on golf courses often requires intensive management to control pests. Pesticides are used to control or reduce the adverse effects of pests including insects, unwanted plants or animals, and pathogenic organisms (Note: the term "pesticides" includes insecticides, herbicides, fungicides, rodenticides, etc.). Turf grass diseases are a significant problem on golf courses, even under good management conditions. Close mowing, high rates of nutrient application, intense irrigation, and moist conditions favor the occurrence of infectious diseases.

Pesticides are applied selectively and much less frequently than fertilizers, usually no more than once or twice per year. The pesticides and herbicides typically used on golf courses are not highly mobile nor persistent; they dissipate rapidly as a result of volatilization, photodegradation, microbial action, hydrolysis and soil absorption.

Surface Water Impacts

A threat to surface water quality from pesticides/herbicide use on the golf course at the project site would most likely occur in the event of: (a) a significant rainfall event immediately following chemical application; (b) spillage in the area where the chemicals are handled and/or stored; or (c) drainage of leachate from golf course sub-drains under tees and greens that discharge directly to or immediately adjacent to streams. There could be a significant impact on the surface water quality of on-site drainages and downstream in Corralitos Creek, San Martin Creek and Llagas Creek if either of the above events under (a) or (b) were to occur. The threat of pesticide runoff to surface waters is greatest from the areas of the golf course where the fairways immediately abut the Corralitos Creek channel, and from the system of golf course lakes that provide an avenue for direct discharge of unfiltered golf course runoff to the roadside drainage ditch along Foothill Avenue, which is a tributary to San Martin Creek.

The potential for adverse impacts from the direct discharge from sub-drains is an ongoing threat. The greens are the most intensively managed parts of a golf course, and they are constructed with highly permeable sandy soils to promote vertical drainage; these conditions are not conducive to retention of pesticides or other chemicals. Therefore, the discharge from these sub-drains has a high probability of containing pesticide residue. During a field review of the project site on October 1, 2003, near the end of the summer dry season, several sub-drains were found to be flowing, including the drain from Green #6 which discharges directly to the adjacent stream channel of Corralitos Creek. During the wet season, the discharge from these drains will be greater, as well as more frequent or even continuous.

The project proponent took water samples from the on-site lakes in March 2002 and again in August and September 2003. All sample results indicated non-detectable concentrations for pesticides. The fact that no pesticides were detected in these samples is favorable and worthwhile information. It does not, however, diminish the concern regarding potential threats to surface waters from pesticide residue that may be carried from the golf course into Corralitos Creek.

? On-going use and maintenance of the golf course could contaminate on-site drainages and the downstream reaches of Corralitos Creek, San Martin Creek and Llagas Creek with pesticides. (Significant Impact)

Ground Water Impacts

Pesticide movement to ground water is generally associated with the following conditions:

- coarse alluvial soils which may have interbedded fine grain materials (high permeability);
- unconfined aquifers with a depth to water table less than thirty feet;
- excessive quantities of irrigation water or other sources;
- extensive or concentrated pesticide applications to the soils occurring over many years, and;
- pesticides which are highly persistent and mobile in the soil-water systems.

The proposed project does not contain any of the conditions listed above. Most of the proposed golf course is located on soils having low permeability, and the depth to ground water in the project area is greater than 50 feet. In addition, golf course irrigation is controlled by an automated system that is specifically designed to prevent excessive watering and minimize runoff from the site. If the irrigation system is operated efficiently and water use is held to a minimum, the amount of excess irrigation water lost to ground water will also be minimal. This will significantly reduce the potential for pesticides to be transported to ground water.

Pesticide use on golf courses is relatively small compared with agricultural operations. Usually pesticide application occurs only once or twice per year. The pesticides commonly used on golf courses are not very persistent. They breakdown or decompose quickly through several mechanisms such as photodegradation, soil adsorption, hydrolysis, and volatilization (i.e., evaporation). Residues are usually undetectable one to two weeks after application. Therefore, pesticide use on a golf course can be managed to avoid creation of any adverse impact on ground water quality. There is insufficient evidence, however, that the project proponent has developed and adopted a pesticide management plan to protect against possible impacts to ground water quality. In the absence of such a plan, this is a potentially significant impact.

? **On-going use and maintenance of the golf course could contaminate the ground water below the project site with pesticides. (Significant Impact)**

Construction Activities

Construction of the existing golf course may have already resulted in the use and discharge of non-point source pollutants into the environment from the use of heavy equipment and construction vehicles. Any further construction work on the project site will increase the potential for discharge of construction-related non-point source pollutants. Such activities will likely include the use of toxic materials (e.g., paint, fuel, motor oil, etc.), which may enter Corralitos Creek or San Martin Creek. Most toxic construction materials will be in relatively small-quantity containers (i.e., 55 gallons or less) and may be dispensed into smaller containers for use. Toxic materials, such as gasoline or diesel fuel, may be transported in larger tank trucks on the project site. The handling of toxic materials will most likely occur in open locations or at temporary facilities without provisions for spill containment and control.

According to information supplied by the project proponent, an NPDES storm water discharge application was filed with the State Water Resources Control Board in January 2000, after considerable construction work had already been done on the site. There is no evidence, however, that the required Storm Water Pollution Prevention Plan was ever prepared or implemented during project construction. As a result, discharge of toxic materials and consequent water quality impacts to local drainages and to Corralitos Creek and San Martin Creek may have already occurred or may be threatened.

In April 2003, the project proponent prepared a Storm Water Pollution Prevention Plan (SWPPP) for the project. The stated purpose of the SWPPP is to cover the "...ongoing golf course maintenance, minor alterations of vegetation and facilities, and reconstruction of the "Flying Lady" restaurant into the Institute of Mathematics facility." The SWPPP was submitted to the Central Coast RWQCB for review. By letter of August 22, 2003, the RWQCB issued a Notice of Violation to the project proponent, advising them of nine deficiencies in the SWPPP, relating to such items as drainage calculations, pre- and post-construction BMPs, erosion and sediment control BMPs, and management of non-storm water discharges from ponds. An amendment was submitted by the project proponent on September 6, 2003, addressing most, but not all, of the deficiencies identified by the RWQCB. By letter of September 18, 2003, the RWQCB issued a second Notice of Violation regarding the SWPPP. The three deficiencies not addressed in the project proponent's September 6th amendment included drainage calculations, impervious surface-runoff changes, and erosion and sediment control BMP details. On October 2, 2003, the project proponent responded to the RWQCB with additional information per the September 18th Notice of Violation.

Based on the fact that the project proponent has now prepared a SWPPP, and that the SWPPP has been submitted to and reviewed by the RWQCB, the project is in the process of achieving compliance with the basic NPDES requirements for storm water discharges. The SWPPP includes various erosion and pollution control measures that must be implemented and monitored during any additional construction activities on the site. Compliance with provisions of the SWPPP will be required and will be verified through periodic inspections, monitoring, and submission of an annual monitoring report. Additionally, the SWPPP will remain in effect for post-construction maintenance and management of storm water and non-storm water discharges from the ponds.

? The compliance with the terms and specific conditions of the SWPPP will reduce the impact from future maintenance and construction activities to a less than significant level. (Less Than Significant Impact)

Water Quality Management and Discharges

All of the golf course lakes, except the spring-fed pond near the 7th green, are equipped with overflow pipes that discharge directly to Corralitos Creek or to the Foothill Avenue drainage ditch that leads to San Martin Creek. Each of the lakes, except Pond G, collect runoff from golf course turf areas, and some collect other site runoff (e.g., from streets and parking areas, maintenance area, and other site landscaping). The lakes meet the definition of "landscape pool drainage", and are subject to regulation under the Central Coast RWQCB "Order No. 01-119, NPDES No. CAG993001 - Waste Discharge Requirements, General Permit for Discharges with Low Threat to Water Quality". In order to obtain coverage under this General Permit, the discharges from the lakes must meet the following criteria:

- Pollutant concentrations in the discharge do not (a) cause, (b) have a reasonable potential to cause, or (c) contribute to an excursion above and applicable water quality objectives, including prohibitions of discharge.
- The discharge does not include water added for the purpose of diluting pollutant
- Pollutant concentrations in the discharge will not cause or contribute to degradation of water quality or impair beneficial uses of receiving waters.

With proper management and implementation of the various water quality mitigation measures identified in this report, the golf course lakes should be able to meet the above criteria for coverage under this General Permit. In order to obtain coverage the project proponent is required to submit the following to the RWQCB:

- Notice of Intent (NOI) and first year's annual fee;
- List of chemicals (including Material Safety Data Sheets) added to the water, and their concentrations;
- Analytical test results for various constituents, including metals, chlorine, pH, nitrate, turbidity, total dissolved solids; and
- Other information deemed necessary by the RWQCB.

Once issued, the permit will include various prohibitions, effluent limitations, receiving water limitations, plus monitoring and reporting provisions customized for particular projects by the RWQCB. The project has not been granted this permit. In addition, the project proponent has not stated that chemicals are used for algae or water quality control; raking of weeds from the edges of the lakes has been explained as the method of maintaining water quality. This does not seem to be a plausible explanation for the unusually high level of water clarity and lack of algae observed in all of the lakes (except the spring-fed pond) during a field inspection on October 1, 2003. Additional information on lake water quality is needed to explain the unnatural conditions in the lakes to verify that discharges from the lakes do not pose a hazard to downstream receiving waters. This is a potentially significant impact.

- ? **Discharge of water from the golf course lakes to Corralitos Creek or to the drainage along Foothill Avenue may include surface runoff pollutants from the golf course and associated project facilities, as well as other chemicals used for maintenance of lake water quality. Depending upon the chemicals used and their concentrations, this could pose a potentially significant impact to the water quality and beneficial uses of Corralitos Creek, San Martin Creek and Llagas Creek. (Significant Impact).**

Groundwater Recharge

The project site lies within the Llagas Groundwater Basin, which is a primary source of water supply for the region. The groundwater basin is "unconfined" in the project area, meaning that the groundwater is recharged directly from the downward percolation of rainfall, stream infiltration, irrigation seepage and other waters released into the ground.

Therefore, changes in land surface conditions and activities have the potential to impact the replenishment or recharge of the groundwater basin.

As discussed previously, the construction of the existing golf course has resulted in a change in the direction and pattern of site drainage and runoff, which impacts the local drainage conditions along Foothill Avenue. The development, however, has not substantially changed the overall rate of runoff (as estimated by the runoff "coefficient"). The amount of impervious surface remains roughly the same as for pre-development conditions, with a slight increase of a few acres due to the creation of the lined ponds, which obstruct the infiltration of rainfall into the ground beneath the ponds. This is balanced by the improved surface infiltration characteristics of the tees and greens on the golf course. The net result is no substantial interference with groundwater recharge to the Llagas Groundwater Basin.

? **The proposed project will not change the groundwater recharge characteristics of the project site. (Less Than Significant Impact)**

3. **Mitigation and Avoidance Measures**

Mitigation Measures Proposed by the Project

The following features are included in the project to reduce the potential for discharge of surface pollutants:

- a Wastewater Treatment-Recycle System (refer to page 57);
- a Pond Treatment-Recirculation System (refer to page 57); and
- golf course irrigation is controlled by an automated system that is specifically designed to prevent excessive watering and minimize runoff from the site.

Conclusion: In the absence of additional proposed mitigation, the potential remains for the project to result in drainage, flooding, and water quality impacts. **(Significant Unmitigated Impact)**

The mitigation measures listed below could reduce the impacts to less than significant, if they are required as conditions of project approval by the City of Morgan Hill.

Mitigation Measures Not Presently Incorporated Into the Proposed Project

The following measures have been identified by the City's hydrology and water quality consultant evaluating the project. These measures would reduce hydrology and water quality impacts to a less than significant level, but at this time have not been incorporated into the proposed project design. Should the City of Morgan Hill require the measure as condition of project approval, and if the measure is implemented by the project proponent, the impact would be less than significant.

Off-site Flooding and Drainage

- In order to mitigate the localized and downstream flooding problems at Foothill Avenue caused or exacerbated by the project, the project proponent shall re-design the drainage system for the golf course to reduce the peak runoff flows to levels that are equal to or less than pre-development conditions. This will require the following measures:
 - ? Redesign Ponds A, B and/or C to provide increased storm water detention capability in order to assure that the peak runoff flow from this area of the site does not exceed pre-development conditions. This shall include a revised hydrologic analysis that adequately accounts for the detention effects of the lakes that were part of the former 40-acre golf course.
 - ? Eliminate the outflow pipe from Pond D to the Foothill Avenue drainage and develop a plan for operation of Pond D as a complete storm water retention system. This shall include supporting calculation and operating criteria and other information to verify that the pond has the capacity and will be operated to contain the 100-yr, 60-day runoff from the contributing drainage area.
 - ? The revised drainage analysis for the project site, including detention and retention basin analysis, shall be subject to review and approval by the Santa Clara Valley Water District and the City of Morgan Hill.
 - ? Emptying of these ponds in order that they function as detention ponds in the winter would also be consistent with mitigation measures identified as necessary to eliminate predators (bullfrogs) that impact on-site red-legged frog populations.

Soil Erosion

Erosion and sedimentation impacts from the proposed project would generally result from construction on the site. It is also likely that on-going maintenance of the golf course will occasionally include excavating, drainage and grading work. Construction-related erosion and sedimentation shall be mitigated by the implementation of the following measures:

- The project proponent must apply for and obtain the applicable state permits under the National Pollutant Discharge Elimination System (NPDES), as required by the State Water Resources Control Board for any grading of more than five acres; this includes the preparation of a Storm Water Pollution Prevention Plan prior to any additional work necessary to reduce flooding and drainage impacts.
- The project proponent shall prepare an Erosion Control Plan for review and approval by the City of Morgan Hill and the Central Coast RWQCB prior to any construction or grading on the site. Erosion control measures shall be established in conformance with the City of Morgan Hill Grading Ordinance,

RWQCB regulations, and local guidelines for non-point source runoff Best Management Practices for construction. The Erosion Control Plan shall include the following measures:

- ? use of fiber rolls and temporary sedimentation basins to retain sediment on the project site;
 - ? protecting all finished graded slopes from erosion through re-vegetation, drainage diversion, and other appropriate methods;
 - ? protecting any downstream storm drainage inlets from sedimentation; and
 - ? No construction shall occur during the winter rainy season (October 15th to April 15th), without written approval from the City Engineer for the City of Morgan Hill.
- Inspection must be conducted by City of Morgan Hill during the construction period to ensure that the erosion control techniques are performing as designed. Erosion control features shall be checked after major winter storm events.
 - Following completion of construction, the roadside drainage ditches and stream channels that border and run through the project site shall be inspected for accumulated sediment. The project proponent shall be responsible for the clearing of accumulated debris and sediment within these channels prior to each winter rain.
 - Following construction, a program shall be established for insuring maintenance of culverts, drain inlets, energy dissipaters, etc., and for erosion control during maintenance grading activities in conformance with the Santa Clara County Grading Ordinance, RWQCB regulations, and Non-Point Source Program Best Management Practices*.

*Santa Clara County, Planning Department, Santa Clara County Environmental/Design Guidelines & Standard Development Requirements for Golf Courses, July 23, 1996.

Water Quality

Non-Point Source Runoff Pollutants

The following mitigation, if incorporated, would reduce the surface runoff impacts to a less than significant level:

- Provide containment dikes around maintenance areas, and provide roofing over any area where the potential for oil, grease and fuel spillage is high;
- Provide oil/grease separators for all catch basins the parking area drainage system;
- Monitor the grounds to control litter and other debris that could be washed into the on-site ponds or drainages (i.e., weekly street sweeping, oil spill

clean-up, etc.);

- Modify the golf course design along the riparian corridor of Corralitos Creek to provide a minimum buffer distance of 50 feet (from the center line of the creek) that contains only native grasses and non-maintained rough for the capture and treatment of surface runoff pollutants, and a similar buffer of 10 feet around all on-site ponds/streams; and
- Adopt and implement as part of on-going site operations, all applicable mitigation measures identified for soil erosion (refer to page 70).

Nitrogen Loading

The following management practices, if implemented, will minimize the transport of nitrate from fertilizers and irrigation waters from the golf course into local ground water and surface waters.

- The project proponent shall prepare a nitrogen control plan which is based upon adetermination of appropriate nitrogen application rates, based upon site specific soil testing and plant requirements.
- Annual accounting of nitrogen application rates to the golf course, including both fertilizer applications and nitrogen content of irrigation water.
- The nitrogen control plan shall include sufficient technical analysis, including monitoring data from the initial operation of the golf course, to demonstrate that the fertilizer and irrigation water applications to the golf course will not exacerbate the existing groundwater-nitrate problems in the project vicinity. Specifically, the nitrate loading from all sources shall be demonstrated to not exceed the estimated nitrate loading that would occur from pre-project conditions (i.e., a 40-acre golf course).
- The project proponent shall submit the nitrogen control plan, including comparison to pre-project nitrate loading estimates, to the Santa Clara Valley Water District (SCVWD) and the Central Coast RWQCB for review and approval, and shall obtain and comply with recommendations provided by these agencies. Additionally, any proposed changes to the fertilizer program shall be submitted to these agencies for review and approval prior to implementation.
- Nitrogen fertilizer application rates shall be adjusted to account for the nitrate levels in the groundwater-irrigation supply, based upon and verified through routine monitoring of irrigation waters. The irrigation water monitoring program shall be in accordance with requirements established by the SCVWD and the RWQCB; at a minimum, the monitoring shall include sampling for nitrate and total kjeldahl nitrogen no less than monthly.
- Application rates of fertilizers shall be determined based on irrigation rates and site-specific soil conditions and turf requirements. A soil monitoring program shall be implemented to determine appropriate application rates, in accordance with recommendations provided by the SCVWD.

- The nitrogen fertilizer shall be slow release or less soluble form, whenever possible.
- Irrigation of the golf course shall be limited to the calculated evapotranspiration rate, plus mineral dilution requirement. Excessive irrigation shall be avoided. This will reduce potential leaching of nitrogen to the subsoil as well as reduce potential surface runoff from irrigation application.
- The timing of fertilizer application shall coincide with the period of greatest plant uptake and avoid periods of potential rainfall-runoff events.
- The overall amount of maintained turf shall be reduced, as needed, in order to minimize the total fertilizer requirements.
- Modify the golf course design as specified previously, including the provision of a minimum buffer distance of 50 feet (from creek centerline) of native grasses and non-maintained rough along all branches of Corralitos Creek, within which fertilizers will not be applied.
- Modify the design of the all sub-drains from tees and greens the discharge to Corralitos Creek to provide a minimum 25-foot vegetated buffer between the outfall point and the creek channel.
- Modify the golf course on Hole #3 to eliminate the turf covering the tributary drainage channel on the north side of Corralitos Creek near Lake G, and reestablish natural channel conditions, maintaining a minimum 50-foot buffer between the turf grass and the centerline of the creek channel.
- Modify the drainage system and/or golf course design in the northwestern portion of the site to eliminate the flooding of the fairway catch basins; provide a minimum 10-foot vegetative buffer around the catch basins, as well as appropriate energy dissipater and a minimum 25-foot vegetated buffer between the outfall and the creek channel.

Pesticide and Herbicides

The golf course operator shall prepare a Chemical Application Management Plan (CHAMP). This plan shall detail the procedures to construct, operate and maintain the golf course and shall provide public disclosure regarding pesticides, fertilizers and other chemicals to be used on the golf course, as well as methods of application and handling. The CHAMP shall be subject to review and approval by the City of Morgan Hill and the Central Coast RWQCB. In addition to the measures incorporated into the proposed golf course layout and design, the following provisions shall be considered for inclusion in the CHAMP and reasons identified for a failure to include any measures:

- Drought, pest, and disease resistant grass species shall be selected;

- Pesticides shall be handled, applied, and disposed of by a licensed (State-certified) spray technician;
- Only approved and legal chemicals shall be used. All county, state, and federal guidelines must be strictly adhered to regarding storage, handling, and application of pesticides;
- Advanced technology/monitoring equipment shall be used to insure minimal application of pesticides, herbicides, and fertilizers. This equipment shall be maintained and properly calibrated;
- A controlled and designated area/facility shall be used for the proper mixing and loading of pesticides into application equipment. The facility shall consist of an impermeable pad with controlled and contained drainage, and shall be at least 50 feet from open ditches, ponds or other water bodies. Rinse water shall be properly stored and hauled for disposal at an approved facility.
- Selection of pesticides shall be based on the ability to achieve treatment goals and criteria to minimize off-site movement. Selection of less toxic, less mobile, and less persistent pesticides shall be a priority management criterion.
- Pesticide applications shall be carefully timed and combined with other pest management practices; pests shall be accurately identified and pesticide applications made only when necessary, using the least amount required.
- Pesticides shall not be applied during the rainy season, when soil moisture is high. Applications shall be restricted prior to any anticipated late or early season storm events to preclude potential impacts from runoff.
- Irrigation applications shall be consistent with turf grass evapotranspiration requirements. Over-watering shall be avoided.
- As described previously, modify golf course design to provide enhanced vegetative buffer areas for retention of pesticide residue, including the following:
 - ? Modify the golf course design along the riparian corridor of Corralitos Creek to provide a minimum buffer distance of 50 feet (from the center line of the creek) that contain only native grasses and non-maintained rough for the capture and treatment of surface runoff pollutants, and a similar buffer of 10 feet around all on-site ponds/streams;
 - ? Modify the design of the all sub-drains from tees and greens that discharge to Corralitos Creek, to provide a minimum 25-foot vegetated buffer (non-turf grass) between the outfall point and the creek channel.

- ? Modify the golf course on Hole #3 to eliminate the turf covering the tributary drainage channel on the north side of Corralitos Creek near Lake G, and reestablish natural channel conditions, maintaining a minimum 50-foot buffer between the turf grass and the centerline of the creek channel.
- ? Modify the drainage system and/or golf course design in the northwestern portion of the site to eliminate the flooding of the fairway catch basins; provide a minimum 10-foot vegetative buffer around the catch basins, as well as appropriate energy dissipater and a minimum 25-foot vegetated buffer between the outfall and the creek channel.
- Additionally, the CHAMP shall include a plan and commitment by the golf course owners/operators to provide on-going monitoring of water quality within the stream channels (Corralitos Creek) that flows through the project and within the on-site lakes that have outfalls to the local drainage channel along Foothill Avenue. A monitoring and reporting program should be established by the RWQCB to enforce this requirement. At a minimum, the water quality sampling shall include monthly sampling of the golf course lakes and stream/drainage channels (above and below the project site) during the rainy season. Sampling shall include nutrients (nitrate and phosphorous) as well as all pesticides used for golf course maintenance. These data shall be reported to the City of Morgan Hill, the Santa Clara Valley Water District, and the Central Coast RWQCB on an annual basis.
- The CHAMP shall subject to review and approval by the City of Morgan Hill, the SCVWD, and the Central Coast RWQCB (If the RWQCB accepts regulatory authority for the CHAMP, reports to the City and SCVWD may be informational only).

Lake Water Quality Management and Discharges

Implementation of the following measures will reduce impacts associated with lake water quality management and discharges to a less than significant level:

- The project proponent shall apply for and obtain an NPDES "General Permit for Discharges with Low Threat to Water Quality" from the Central Coast RWQCB for all of the on-site lakes, except where they are designed and operated to assure no discharge. This will require the submittal of standard information required by the General Permit, in addition to other information that may be required by the RWQCB.
- For the lakes that are proposed as complete retention lakes (D, E, and G), the project proponent shall develop and submit an operations plan, including supporting calculations, operating criteria, and other information as may be deemed necessary by the RWQCB, to verify that the lakes have capacity for and will be operated to contain the 100-year, 60-day runoff from the contributing drainage area.

- The project proponent shall also include identification of any chemicals added to the lakes for water quality control or other reasons, as provided by Application Requirement 1b (1) in the General Permit. The project proponent shall also comply with all provisions of the General Permit, including monitoring and reporting provisions established by the RWQCB.

E. WATER SUPPLY

The following discussion is based upon a hydrology, water quality, and water supply report prepared for the project site by *Questa Engineering Corporation*, in October 2003. The report was prepared after the construction of the existing 18-hole golf course. A copy of the report is included as Appendix D of this EIR. Some of the information reviewed in this section was prepared by another technical consultant who was retained by the project proponent. The information prepared by the project proponent and submitted to the City of Morgan Hill is available for public review during normal business hours.

1. Existing Setting

The project site is located along the eastern edge of the Llagas Groundwater Basin, which serves as a principal source of domestic and agricultural water supply for the region. The groundwater basin is "unconfined" in the project area, meaning that the groundwater is recharged directly from the downward percolation of rainfall, stream infiltration, irrigation seepage, and other waters released into the ground. The groundwater levels at the project site are estimated to be approximately 100 feet below the ground surface (bgs).

Four high yielding wells on the project site are the current source of irrigation and domestic water for the golf course. The project proponent has applied to the Santa Clara County Health Department for a permit to install a new well for the domestic water supply⁸; however, the well was not installed.

Based on data provided by the Santa Clara Valley Water District (SCVWD), groundwater quality conditions in the project area are suitable for irrigation use but not domestic use. Groundwater in the project area has elevated concentrations of nitrate. Nitrate is a primary drinking water parameter, and the groundwater quality data for the project vicinity indicate concentrations of nitrate that exceed the drinking water limit of 45 mg/L (Title 22, California Code of Regulations). Data from SCVWD for 31 wells in the immediate project vicinity show nitrate concentrations to be in the range of 1 mg/L to 103 mg/L, with the average being about 68 mg/L. Only three of the 31 wells had a nitrate concentration below 45 mg/L. A few of the data are more than 10 years old, but most of the data have been collected since 1998. The one well with several years of sampling data indicates a distinct increase in nitrate concentration over the past 13 years, from 26 mg/L to 49 mg/L.

Additionally, as discussed previously, in March 2002, the proponent took water samples from the four on-site wells on the project site and had the samples tested for nitrate, with results similar to the SCVWD data for other wells in the project vicinity. The results are shown in Table 4.

⁸ Personal communication, Suzanne Muzzio, Santa Clara County Health Department, July, 2001.

Table 4 On-site Well Nitrate Concentrations	
Well #	Nitrate Concentration (mg/L)
1	47
2	49
3	54
4	85

2. Water Supply Impacts

For the purposes of this project, a water supply impact is considered significant if water demand by the project:

- will substantially increase the consumption of limited potable water supplies;
- exceeds the capacity of the water supply or infrastructure system and will require a substantial expansion of the water supply, treatment or distribution facilities; and
- will substantially deplete groundwater resources or contribute to groundwater overdraft.

Water demand for the project includes: irrigation for the golf course turf and landscaping; domestic supply for the golf course and Mathematics Institute maintenance staff and visitors to the golf course and Mathematics Institute; and fire protection supply.

Irrigation Water Supply

All water used for the irrigation of the existing golf course is extracted from the Llagas Groundwater Basin located beneath the site. Other properties in the project area also rely upon the same groundwater basin for domestic and agricultural water supplies.

Based on data supplied by the project proponent, water demand for golf course irrigation is estimated to average approximately 437,500 gallons per day (gpd), which equates to about 3.83 acre-feet per acre per year, for the estimated 128 acres of irrigated turf grass. According to the project proponent, golf course irrigation water is supplied from Wells #1, #2, and #3.

The combined yield of the existing three on-site wells is sufficient to meet the irrigation demand of the proposed project. The pumping of groundwater for golf course irrigation will, however, substantially increase the amount of water extracted from the groundwater basin as compared with pre-development conditions and will greatly exceed the amount of groundwater recharge that occurs locally. The net result of the continued operation of the existing golf course, as currently designed, may be a decline in the groundwater levels beneath the project site and beneath existing water wells serving neighboring properties. Because the Llagas groundwater basin is unconfined, water levels in the area are expected to drop slowly over time. This is a significant impact.

Information Supplied by the Project Proponent

A groundwater analysis supplied by the project proponent⁹, which includes groundwater level data for existing water wells in the project area, contends that there has been no discernible impact on groundwater levels that could be attributed to the operation of the golf course irrigation wells during the initial few years of pumping. *Questa Engineering* has reviewed the analysis and disagrees with the interpretations and conclusions of the *Aquifer Sciences'* report. Based on groundwater level data for five wells located in the project vicinity, *Aquifer Sciences* concluded that the hydrograph (i.e., water level vs. time) for the off-site well nearest the golf course (Well 25P001, located near the intersection of Foothill and Maple Avenue) showed no noticeable "before and after" water level differences, as compared with the other wells in the Llagas Basin located farther away from the golf course.

Careful review of the data provided does not support this conclusion. The water level of the well closest to the project site dropped 20 feet between 1997 and 2001, and the well farthest away from the golf course dropped 10 feet. This is a noticeable water level difference and does not support the project proponent's contention that the golf course is not affecting water levels below the site. In fact, this data supports Questa's conclusion that the net result of the continued operation of the existing golf course, as currently designed, may be a decline in the groundwater levels beneath the project site and beneath existing water wells serving neighboring properties. This is a significant impact.

- ? **Irrigation of the proposed project may substantially deplete groundwater resources in the area, including groundwater supplying neighboring off-site wells. (Significant Impact)**

Domestic Water Supply

Groundwater in the project area cannot be used for domestic purposes due to high nitrate concentrations. Groundwater data indicate that the nitrate concentration exceeds the State Drinking Water Standard (Title 22) of 45 mg/L for most of the wells in the immediate project area, and that the recent historic trend is toward higher concentrations. The project does not have an acceptable source of potable water for use by the employees and visitors to the golf course and the Mathematics Institute. This is a significant impact.

- ? **The proposed project does not have an acceptable on-site source of potable water, which may present a health hazard to workers and visitors at the project site. (Significant Impact)**

Fire Protection Water Supply

The fire protection water supply for the existing golf course uses the same water supply as the irrigation system. The fire/irrigation water supply is stored in Pond D adjacent to Foothill Avenue, immediately north of the main entrance (refer to Figure 3). The pump station for the fire/irrigation system is located between the Pond D and Foothill Avenue. In the event of a fire, the fire department will override the irrigation system with a special key and all on-site resources will be devoted to fire protection. The Santa Clara County Fire Department has determined that the on-site fire/irrigation water supply is sufficient for the

⁹Prepared by Aquifer Sciences, Inc., "Groundwater Environmental Data Report", May 24, 2002.

existing golf course use. It is not known at this time if there is capacity in the supply to meet the additional fire protection requirements for the proposed headquarters of the American Institute of Mathematics. The amount of water storage will be a function of building size and construction type.

- ? **The fire/irrigation water supply may not be sufficient to serve the additional fire water requirements of the proposed headquarters of the American Institute of Mathematics, which could result in property loss or a hazard to human life. (Significant Impact)**

3. Mitigation and Avoidance Measures

Mitigation Measures Proposed by the Project

The following measure is included in the project to reduce water supply impacts:

- computerized irrigation system will minimize the inefficient use of water on the golf course.

Conclusion: In the absence of additional proposed mitigation, the potential remains for the project to result in significant health impacts from an inadequate supply of domestic water, safety impacts from inadequate fire water supply, and water supply impacts, including causing the water table serving nearby properties to decline. **(Significant Unmitigated Impact)**

Implementation of the specifically identified mitigation measures listed below could reduce project impacts related to inadequate domestic water supply, insufficient fire protection water supply, and significant depletion of groundwater supplies, if they are required as conditions of project approval by the City of Morgan Hill.

Mitigation Measures Not Presently Incorporated Into the Proposed Project

The following mitigation measures are identified to reduce water supply impacts to a less than significant level, but has not been incorporated into the proposed project design. Should the City require the measures as conditions of project approval, and if the measures are implemented by the project proponent, the impacts would be less than significant.

Domestic Water Supply

In order to provide a suitable supply of domestic water for the project one of the following would need to be done prior to issuance of building permits for the proposed Mathematics Institute:

- apply for and obtain approval for connection to an approved public water system, including the completion of any required environmental review for water system extension; or

- complete a comprehensive investigation and analysis of the hydrogeology and groundwater quality on the site to verify that a supply of domestic water of acceptable quality (per Title 22 Drinking Water Standards) can be provided for the life of the project; the results of this analysis shall be subject to review and approval by the State Department of Health Services and the Santa Clara County Health Department; or
- modify the project to eliminate the need for provision of a public water supply; a "public water supply" is defined by Title 22 as "... a system for the provision of piped water to the public for human consumption that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year."

If the last option is selected, mitigation of the high groundwater-nitrate concentrations will still require that the project proponent supply a safe and suitable drinking water supply that complies with all applicable drinking water quality limits; however, this could be met by the project proponent through the inclusion of a water treatment system or importation of certified potable water that will not necessarily qualify as a "public water system".

Fire Protection Water Supply

- Prior to issuance of building permits for renovating the existing restaurant building for its use as the headquarters for the American Institute of Mathematics, the project proponent shall augment existing water storage facilities on the project site (e.g., construct a water tank) to meet the fire protection water supply requirements as determined by the Fire Chief. The required amount of water will be a function of building size and construction type.

Groundwater Resource Depletion

The significant impact of the golf course irrigation on groundwater resources in the project vicinity can be mitigated by implementing one of the following measures:

- Reduce the amount of irrigated turf within the golf course to a maximum of approximately 55 to 60 acres, or otherwise reduce the irrigation water demand of the existing golf course by 50 percent. The as-built golf course currently has approximately 128 acres of irrigated turf, including tees, greens, fairways and rough. This is a relatively large amount of turf for an 18-hole golf course. There are examples of golf courses recently constructed in the region with as little as 50 acres of irrigated turf. Reduction of the maintained turf areas by this amount will bring the water demand into an approximate balance with the local groundwater recharge conditions, thereby reducing the potential effect on groundwater levels by an equivalent amount. Reduction of the amount of turf will also reduce the fertilizer requirements and the associated groundwater-nitrate impact of the project.
- While the information currently available indicates that the project could substantially impact groundwater levels, much more detailed studies could

modify that information. The project proponent and the City of Morgan Hill could complete a much more detailed groundwater investigation to confirm that the proposed pumping of groundwater for golf course irrigation would not cause a significant decline in the water table at neighboring properties. The scope of this investigation will need to include an inventory of existing water wells, pumping rates, water level fluctuations and gradients, aquifer characteristics (e.g., transmissivity and storativity), and recharge rates. From this information, a groundwater budget and hydraulic model shall be developed to estimate the change in groundwater conditions caused by the pumping of groundwater for golf course irrigation. The scope of work and the results of this investigation shall be subject to review and approval by the Santa Clara Valley Water District.

- Subject to further research, the use of recycled water to irrigate the golf course could be implemented to reduce the use of groundwater.

The implementation of either of the above measures would be sufficient to reduce water supply impacts to a less than significant level. In the absence of sufficient and appropriate mitigation measures, the impacts remain significant.

F. TRAFFIC AND CIRCULATION

1. Existing Setting

Roadway Network

The project site is served regionally by Highway 101, and locally by Tennant Avenue, San Martin Avenue, Middle Avenue and Foothill Avenue. A private drive from Foothill Avenue provides direct access to the project site.

Highway 101 is a six-lane freeway that runs in a north-south direction about one and one-quarter miles to the west of the project site. Tennant Avenue runs in an east-west direction, and provides northern freeway access to and from the project site. San Martin Avenue runs in an east-west direction, and provides southern freeway access to and from the project site. Middle Avenue runs in an east-west direction, and provides a direct route between central Morgan Hill and the project site. Foothill Avenue runs in a north-south direction along the western boundary of the project site.

Transit Service

Bus service in Santa Clara County is operated by the Santa Clara Valley Transportation Authority (VTA). Commuter rail service (CalTrain) is provided from San Francisco to Gilroy by the Peninsula Joint Powers Board. Due to the location of the project site on the outskirts of the City limits, transit and rail service are not readily accessible. The nearest bus route is over one and one-half miles north of the project site, and the Morgan Hill CalTrain Station is located over four and one-half miles west of the project site.

Bicycle and Pedestrian Facilities

Pedestrian facilities, such as sidewalks, crosswalks, and pedestrian signals, are not provided in the project area. The nearest bicycle facility is located along Dunne Avenue, approximately two miles north of the project site.

Existing Roadway Volumes

Due to the location of the project site in a lightly populated area on the outskirts of the City limits, traffic volumes in the project area are very low. All intersections in the vicinity of the project site are controlled by stop signs, and operate efficiently¹⁰.

2. Traffic Impacts

Thresholds of Significance

For the purposes of this project, a traffic impact is considered to be significant if it will:

- exceed the capacity of the existing roadway system;
- cause a freeway segment to operate at LOS F or contribute traffic in excess of 1% of segment capacity to a freeway segment already operating at LOS F;

⁶ Personal Communication, Scott Creer, City of Morgan Hill Public Works Department, May 15, 2001.

- impede the development or function of planned pedestrian or bicycle facilities; or
- create an operational safety hazard.

Project Traffic Estimates

Trip Generation

There are two activities proposed by the project that will generate traffic, the continued use of the existing golf course and the proposed relocation of the headquarters of the American Institute of Mathematics to the project site. As proposed, the golf course will only be open to play from April 15th to October 1st. The remainder of the year the golf course will be closed for maintenance. A maximum of 36 rounds of golf per day will be played on the golf course. During the remainder of the year, the only traffic associated with the golf course would be the employees who do maintenance and upkeep.

Trip generation rates for an 18-hole golf course were identified using the standard reference, *Trip Generation*. (Institute of Transportation Engineers, 5th Edition 1991, *Trip Generation Manual*. A typical 18-hole golf course generates approximately 680 trips per day, 60 of which are peak hour. Most of the trips are the result of golfers traveling to and from the golf course. A typical 18-hole golf course averages 200 rounds of play per day, 82 percent more than the proposed golf course use. Based on that rate, it is estimated that the proposed project will generate approximately 120 total daily trips, which is 18 percent of the traffic generated by a typical golf course. Ten or eleven of those trips may be during the peak hours.

The proposed relocation of the Mathematics Institute to the project site is not expected to generate a substantial amount of traffic. As described previously, the Mathematics Institute will hold 24 conferences, one week in duration, per year. Approximately 32 participants will attend each conference. Most of the participants will be shuttled from the airport or train station to the Mathematics Institute, where they will reside for the duration of the conference. A permanent staff of 25 employees would commute to the Mathematics Institute. The headquarters of the American Institute of Mathematics, as proposed, is not expected to generate more than 60 peak hour trips on any one day.

Based on County CMA Criteria, projects generating fewer than 100 peak hour trips are not assumed to exceed the capacity of the existing regional transportation system. The proposed project is expected to generate approximately 41 peak hour trips; therefore, the proposed project is not expected to exceed the capacity of the existing roadway system.

The proposed PD Rezoning application carries a statement that “charity golf tournaments” might occur at the site. As stated previously in this EIR, no analysis was done of the impacts (including traffic impacts) of such tournaments because no information was supplied about the tournaments. This EIR does not address the tournaments and this use cannot be approved by the City, based on this EIR.

- ? The proposed project, including a golf course that is used for no more than 36 rounds per day and the American Institute of Mathematics, will not generate traffic that would exceed the capacity of the existing roadway system. (Less Than Significant Impact)**

Conclusion: The proposed project will not exceed the capacity of the existing roadway system. **(Less Than Significant Impact)**

G. NOISE

1. Existing Setting

Background Information

Several factors influence sound as it is perceived by the human ear, including the actual level of sound, the periods of exposure to the sound, the frequencies involved, and fluctuations in the noise level during exposure. Noise is measured on a "decibel" scale which serves as an index of loudness. Because the human ear can not hear all pitches or frequencies, sound levels are frequently adjusted or weighted to correspond to human hearing. This adjusted unit is known as the "A-weighted" decibel or dBA.

Noise Policies and Regulations

The City of Morgan Hill Public Health and Safety Element of the General Plan contains goals and policies designed to protect and enhance the noise environment of the City. Schools, libraries, churches, hospitals, and nursing homes are considered "normally acceptable" in noise environments up to 70 dB Ldn. Above 70 dB Ldn noise levels are considered "normally unacceptable" for these land uses. Playgrounds and neighborhood parks are considered "normally acceptable" in noise environments up to 70 dB Ldn.

Existing Noise Levels

The project site is geographically remote from the urban nucleus of the City of Morgan Hill. Land uses in the project area include rural residential, agricultural, estate residential, and open space. The baseline noise environment of the project area reflects the rural setting of the project area, and as a result is relatively low. The existing noise exposure on the project site is identified on the noise contour map of the City's General Plan to be below 60 dBA L_{dn}¹¹. Noise levels perceptible at the project site are generated by farm equipment, local vehicle traffic, and nearby residential uses.

2. Noise Impacts

Thresholds of Significance

For the purposes of this project, a noise impact is considered significant if the project will:

- result in a substantial increase in ambient noise levels; or
- conflict with established plans and policies; or
- expose people to noise levels in excess of established City or state standards; or
- expose people to a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

¹¹ The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.

Impacts to the Proposed Project

The noise study conducted for the City of Morgan Hill's General Plan estimated that existing noise levels in the project area are less than 60 dBA. Noise levels up to 70dBA are considered acceptable by the City of Morgan Hill Public Health and Safety Element of the General Plan for land uses that include playgrounds and parks.

- ? **The proposed project will not be exposed to noise levels above City standards. (Less Than Significant Impact)**

Impacts from the Proposed Project

Traffic Noise

None of the currently proposed land uses, including operating a golf course on which no more than 36 rounds of golf per day are played, will generate significant noise. Maintenance equipment used on the golf course may be perceptible off-site, similar to the noise from farm equipment used in the area. The proposed project will result in a small increase in traffic to and from the site. A doubling in traffic volume is required for a perceptible (three decibel) noise increase. The project, as described in **Section II., F., Traffic and Circulation** of this EIR, will not substantially increase traffic in the project area, and therefore, will not significantly increase ambient noise levels.

- ? **Noise levels associated with project-generated traffic will not significantly increase ambient noise levels in the project area. (Less Than Significant Impact)**

Construction Noise

During any additional on-site construction, including renovating the major structure on the site for the American Institute of Mathematics, the proposed project may result in short-term construction noise impacts upon adjacent land uses due to the use of heavy equipment. Construction equipment generates noise levels in the range of 70 to 90 dBA (A-weighted decibels) at a 50 foot distance from the source and has the potential for disturbing surrounding land uses when equipment is operating in the vicinity.

- ? **The proposed project may result in significant short-term noise impacts during any future construction. (Significant Impact)**

3. Mitigation and Avoidance Measures

Conclusion: In the absence of proposed mitigation, the potential remains for the proposed project to temporally increase ambient noise levels in the project area during construction. **(Significant Unmitigated Impact)**

The mitigation measures listed below could reduce construction noise impacts to a less than significant level, if they are required as conditions of project approval by the City of Morgan Hill.

**Mitigation Measures Not Presently Incorporated
Into the Proposed Project**

The following measures have been identified to mitigate temporary noise impacts to a less than significant level, but have not been incorporated into the project design at this time. Should the City of Morgan Hill require the measures as conditions of project approval, and if the measures are implemented by the project proponent, the impact would be less than significant.

- According to the City of Morgan Hill Noise Ordinance, noise-generating construction activities are defined as including, but are not limited to, excavation, grading, paving, demolition, construction, alteration or repair of any building site, street, or highway, delivery or removal of construction material to a site or movement of construction materials on a site. These construction activities are prohibited other than between the hours of 7:00 AM to 8:00 PM, Monday through Friday, and between the hours of 9:00 AM and 6:00 PM on Saturday. Construction activities may not occur on Sundays or federal holidays.
- Construction operations could use available noise suppression devices and techniques, and equipment will be properly muffled and maintained.

H. HAZARDOUS MATERIALS

1. Existing Setting

Maintenance and Operation

The operation of the existing golf course requires the use and storage of hazardous materials. Hazardous materials currently stored on the site include fertilizers, herbicides, pesticides, solvents, lubricants, hydraulic fluids, motor oil, diesel fuel, unleaded fuel, acetylene tanks, and oxygen tanks. All hazardous materials are stored within the existing maintenance facility located centrally on the project site (refer to Figures 3 and 4). The existing golf course operation also generates hazardous waste, including used oil and oil filters, antifreeze, and solvent.

Regulations for Use and Storage of Hazardous Materials

The use, handling, and storage of hazardous materials within the City of Morgan Hill's jurisdiction is regulated by the City's Hazardous Materials Storage Permit Ordinance and the County's Hazardous Materials Storage Permit Ordinance. These Ordinances require the project proponent to obtain a Hazardous Materials Storage Permit prior to the use, handling, or storage of hazardous materials on the site. In order to obtain a Hazardous Materials Storage Permit, any proposed hazardous materials storage facilities are required to include the following: 1) a monitoring system; 2) primary and secondary containment facilities; 3) overfill protection; 4) separation of materials; 5) a drainage system; 6) a security system; 7) emergency equipment and procedures; and 8) preparation of a Hazardous Materials Business Plan (HMBP). The HMBP must include general project/proponent information, a general facility description, a facility storage map, a hazardous materials inventory statement, information regarding the separation of materials, a description of the monitoring system, record keeping forms, and emergency equipment information.

A Hazardous Materials Business Plan was prepared for the existing golf course and maintenance facility. A site visit was conducted by the Santa Clara County Fire Department (SCCFD) and the Hazardous Materials Business Plan for the project was approved on March 1, 2001. The approved Hazardous Materials Business Plan is on file with the SCCFD. All necessary permits have been obtained for the storage and use of hazardous materials on the project site.

Hazardous waste generators are required to obtain a Hazardous Waste Generator Permit from the Santa Clara County Department of Environmental Health. A Hazardous Waste Generator Permit has been obtained for the generation of hazardous waste on the site¹².

Asbestos Containing Materials

The existing restaurant building located on the project site was constructed prior to 1978. The use of lead based paint and/or asbestos containing materials (ACMs) was not banned until 1978. The project proposes to renovate or rebuild the existing restaurant building for

⁹ Conversation with Nicole Pullman, Hazardous Materials Specialist, Santa Clara County Department of Environmental Health, July 30, 2001.

use as the Headquarters of the American Institute of Mathematics. There is the possibility that the structure contains lead based paint and/or ACMs.

In addition, the other existing structures on the project site that the project proposes to use for support facilities may also contain lead-based paint or ACMs. The buildings and their proposed uses include the following: the use of the existing 4,992 square foot residence (a former farmhouse) on the project site as a residence for mathematicians; the use of an existing 1,850 square foot milk barn as restrooms; the use of an existing 8,774 square foot hay barn as the caretaker's quarters and for equipment storage; and the use an existing church building for offices, food preparation and service, and a lecture hall.

Washpad Facility

The existing golf course facilities include a wastewater treatment-recycle system located in the maintenance area to clean mowers and other equipment that may be contaminated with golf course chemicals, oils and grease. This is a total recycle system that incorporates various treatment processes (e.g., high-pressure sprayers, degreasers, settling, filtration, physical-chemical adsorption) to collect the equipment rinse water, cleanse it and recycle it for continual use. The wastewater treatment-recycle system produces a concentrated discharge that is considered hazardous waste.

2. Hazardous Materials Impacts

Thresholds of Significance

For the purposes of this project, a hazardous materials impact is considered significant if the project will:

- create a significant hazard to the public or the environment as a result of the routine transport, use, or disposal of hazardous materials; or
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school; or
- create a significant hazard to the public or the environment from existing hazardous materials contamination by exposing future occupants or users of the site to contamination in excess of soil and ground water cleanup goals developed for the site.

Hazardous Materials and Hazardous Waste

The continued operation of the golf course will require the handling and storage of chemical fertilizers, herbicides, pesticides, and other hazardous materials. The proposed project will also continue to generate hazardous waste, including the waste generated by the wastewater treatment-recycle system. The existing maintenance/storage facility for the golf course has been inspected by the SCCFD and has received the necessary Hazardous Material Storage and Hazardous Waste Generator Permits. A representative of the project proponent has stated that the concentrated discharge produced by the wastewater treatment-recycle system

will be disposed of in an appropriate manner along with all other hazardous materials generated by the project¹³.

The water quality impacts associated with the application of pesticides and fertilizers is discussed in **Section II., H., Water Quality**, of this EIR.

- ? **Management of hazardous materials and disposal of hazardous waste in conformance with federal, state, and local regulations will not result in a significant impact to the environment or the people occupying the site. (Less Than Significant Impact)**

Asbestos Containing Materials

Due to the age of the existing restaurant building and other structures on the project site, there is the possibility that ACMs and lead based paint may occur within the structures. The project proposes to renovate or rebuild the restaurant building for its use as the headquarters of the American Institute of Mathematics. The other buildings will also need to be remodeled prior to their use as support facilities which will include residences. Construction activity associated with work done on the buildings may expose workers or nearby persons to these hazardous materials. This is a significant impact.

- ? **The existing structures on the project site may contain ACMs or lead based paint. Demolition or remodeling may release air-borne asbestos and/or lead dust, causing a significant impact to workers or other persons in the area. (Significant Impact)**

3. Mitigation and Avoidance Measures

Mitigation Measures Proposed by the Project

The following measure is included in the project to reduce hazardous materials impacts:

- The disposal of the concentrated discharge produced by the wastewater treatment-recycle system will be handled by the certified hazardous material disposal company that is currently handling all other hazardous waste generated by the project.

Mitigation Measures Required by the City of Morgan Hill

The following measures are required by the City of Morgan Hill and will reduce hazardous materials impacts to a less than significant level, if a building permit is obtained for all future demolition, renovation, and/or construction of buildings on the project site.

- Prior to obtaining a building permit for all future renovation or demolition of existing buildings on the project site, verification that the buildings were inspected for lead based paint and asbestos containing materials (ACMs) will be required by the City of

¹³ Kevin Robins, Project Construction Manager, personal communication, April 11, 2001.

Morgan Hill during the building permit process¹⁴. If any of these contaminants are found, they would be removed in accordance with OSHA and the Department of Toxic Substances (DTSC) standards.

Conclusion: With the implementation of the mitigation measures proposed by the project and those required by the City of Morgan Hill during the building permit process, the project will not result in a significant hazardous material impact.
(Less Than Significant Impact With Mitigation)

¹⁴Mary Anne Kendall, Office Assistant, City of Morgan Hill Building Department, Personal Communication, November 26, 2003.

I. AIR QUALITY

1. Existing Setting

Air Pollution Climatology

The amount of a given pollutant in the atmosphere is determined by two factors: the amount of pollutant released; and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and for photochemical pollutants, sunshine.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of the time in both the morning and afternoon. In winter, surface-based inversions dominate in the morning hours, but frequently, dissipate by afternoon.

Morgan Hill lies at the southern end of the Santa Clara Valley, separated from the Pacific Ocean by the Santa Cruz Mountains. Winds generally blow up or down the valley, in either a northerly or southerly direction.

Terrain has a relatively large influence on air quality at Morgan Hill. Its location in an inland sheltered valley and the orientation of the valley result in the restriction of lateral dilution of pollutants, and also causes pollutants released elsewhere in the greater Bay Area to be carried towards Morgan Hill by the prevailing summer winds.

When compared to other parts of the Bay Area, the potential for air pollution in Morgan Hill is high. The warm temperatures, often light winds, and location downwind from a major urban area combine to create a substantial potential for ozone pollution.

The project is located near the southern end of the San Francisco Bay Air Basin and the Bay Area Air Quality Management District (BAAQMD). It is near the northern boundary of the adjacent North Central Coast Air Basin (NCCAB) and the Monterey Bay Unified Air Pollution Control District (MBUAPCD). The San Francisco Bay Air Basin has been identified as a transporter of ozone to the NCCAB, which has attained the federal ozone standards, but not the State ambient ozone standard.

Ambient Air Quality

The Bay Area Air Quality Management District (BAAQMD) is the local agency responsible for developing rules and regulations to implement the many requirements of Federal and State clean air law. Ambient pollutant concentration standards have been developed at the State and Federal levels for six major pollutants: carbon monoxide (CO), ozone, nitrogen dioxide, sulfur dioxide, suspended particulate matter, and lead. Three of these six pollutants, CO, ozone and suspended particulate matter, are of particular concern in the Bay Area.

Of these three pollutants known to at times exceed the state and federal standards in the project area, two are regional pollutants and one is a local pollutant. Both ozone and PM10 are considered regional pollutants in that concentrations are not determined by proximity to

individual sources, but show a relative uniformity over a region. Carbon Monoxide (CO) is a local pollutant which is usually found very near its source. The major source of CO, a colorless, odorless, and poisonous gas, is traffic. Elevated concentrations are usually found near areas of high traffic volumes, such as at intersections, where cars idle for various periods of time.

Sensitive Receptors

The BAAQMD defines sensitive receptors to air pollutants as facilities where sensitive receptor population groups (children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include residences, school playgrounds, child care centers, retirement homes, convalescent homes, hospitals and medical clinics. The closest sensitive receptors to the project site are the residences immediately across Foothill Avenue from the golf course.

2. Air Quality Impacts

Thresholds of Significance

For the purposes of this project, an air quality impact is considered significant if the project will:

- violate an ambient air quality standard or contribute substantially to an existing or projected air quality violation; or
- result in substantial emissions or deterioration of ambient air quality; [The significance thresholds recommended by the BAAQMD for criteria air pollutants are considered to represent "substantial" emissions. For mobile sources, these thresholds are 80 pounds per day and/or 15 tons per year for nitrogen oxides, reactive organic gases, and PM10.]; or
- result in carbon monoxide emissions of 550 pounds per day or 100 tons or more on an annual basis; or
- create objectionable odors; or
- expose sensitive receptors or the general public to substantial levels of toxic air contaminants.

Traffic-Related Impacts

BAAQMD's CEQA Guidelines recommend that a detailed air quality impact analysis be done for any project that could generate 2,000 or more vehicle trips per day. The proposed project would generate less than 2,000 vehicle trips per day (refer to **Section II., F., Traffic** of this EIR). Therefore, project generated traffic is not expected to result in a significant impact upon air quality.

- ? **Vehicle trips generated by the project would not exceed BAAQMD thresholds, therefore, the proposed project would not have a significant impact on air quality. (Less Than Significant Impact)**

Construction-Related Impacts

Construction-related air quality impacts associated with the proposed project would be the result of dust creating activities, exhaust emissions of construction equipment, and the use of typical construction materials such as solvents, paints and other substances that tend to volatilize into the atmosphere. Due to the negligible amount and short duration of these impacts, all are considered to be less than significant, except for dust creating activities. The proposed project would not expose sensitive receptors or the general public to substantial levels of toxic air contaminants.

Construction activities such as excavation and grading operations and construction vehicles driving over and wind blowing over exposed earth generate fugitive particulate matter that would affect local and regional air quality.

The effects of these dust generating activities would be increased dustfall and locally elevated levels of PM10 downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties¹⁵.

- ? **Construction of any remaining components of the proposed project could result in significant short term air quality impacts associated with dust generation. (Significant Impact)**

Odor Impacts

Grass clippings from the golf course are currently being disposed of on-site, along Foothill Avenue. If the golf course continues to pile grass on the site, allowing anaerobic conditions to develop, the project may result in significant off-site odor impacts over time¹⁶.

- ? **The proposed project may expose members of the public, including nearby residents, to objectionable odors. (Significant Impact)**

3. Mitigation and Avoidance Measures

Conclusion: In the absence of proposed mitigation measures, the on-going use and maintenance of the existing golf course, the proposed demolition of the existing restaurant building and construction of the headquarters of the Mathematics Institute in its place, and the renovation of various existing structures on the project site will result in significant air quality impacts. **(Significant Unmitigated Impact)**

The mitigation measures listed below could reduce air quality impacts to less than significant, if they are required as conditions of project approval by the City of Morgan Hill.

¹⁵The word nuisance is used in this EIR to mean "annoying, unpleasant or obnoxious" and not in its legal sense.

¹⁶Anaerobic decomposition is the breakdown of organic matter in the absence of oxygen, and is characterized by strong, disagreeable odors.

Mitigation Measures Not Presently Incorporated Into the Proposed Project

The following mitigation measures are identified to reduce air quality impacts to a less than significant level, but are not incorporated into the proposed project design. Should the City of Morgan Hill require the measures as conditions of project approval, and if the measures are implemented by the project proponent, the impact would be less than significant.

Construction Related Impacts

The BAAQMD has prepared a list of feasible construction dust control measures that can reduce construction impacts to a level that is less than significant. The following construction practices would reduce construction related air quality impacts to a less than significant level.

- Dust-proof chutes would be used for loading construction debris onto trucks.
- Watering would be used to control dust generation during demolition of structures and break-up of pavement.
- Cover all trucks hauling demolition debris from the site.
- Water all active construction areas at least twice daily.
- Watering or covering of stockpiles of debris, soil, sand or other materials that can be blown by the wind.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking, and staging areas at construction sites.
- Sweep daily (preferably with water sweepers) all paved access road, parking areas and staging areas at construction sites.
- Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
- Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

- Replant vegetation in disturbed areas as quickly as possible.

Odor Impacts

The following mitigation measure would reduce project related odor impacts to a less than significant level:

- Existing and future grass clippings could be collected and either: (1) composted on-site at a location and in a manner to be specifically addressed in the Planned Development Rezoning Permit; or (2) hauled to an off-site recycling facility; or (3) left on the golf course to compost *“in situ”*.

J. CULTURAL RESOURCES

The following discussion of cultural resources is based upon a Cultural Resource Evaluation completed by *Archaeological Resource Management* in June 1996. The evaluation included an archaeological literature review and a site survey, and is included as Appendix E of this EIR.

1. Existing Setting

Cultural Resource Evaluation

An archaeological literature review was conducted at the Northwest Information Center located at the Sonoma State University campus. The literature review was conducted to determine if any historic or prehistoric sites have been recorded on the project site or in the project vicinity. The archival search revealed that there are no recorded sites, historic or prehistoric, in the project area.

A general surface reconnaissance was conducted by a field archaeologist on all open land surfaces in the project area. At the time of the survey, most of the flatland on the project site was used for the farming of alfalfa, and the remaining portion of flatland was covered by an abandoned golf course. The southern half of the hillside portion was highly disturbed and terraced above the abandoned golf course. Structures on the site at the time of the survey included the Flying Lady restaurant (presently proposed to be renovated and used as the headquarters of the American Institute of Mathematics), a large metal hangar building (existing maintenance facility), a metal silo (demolished since the time of the survey), a large wooden barn (currently used for hay bail storage), a wooden water tank (to be retrofitted with inner steel tank), and a 1970's house (residence of golf course superintendent). There were no historic or cultural resources noted during the field survey, but the wooded hillside area along the creeks and adjacent to the 1970's house was determined to likely contain subsurface cultural materials.

Since the completion of the cultural resource evaluation, the existing 18-hole golf course was constructed on the site. The project proponent has stated that the archaeologically sensitive wooded area adjacent to the residence and creeks on the hillside was avoided during the construction of the golf course.

2. Cultural Resource Impacts

Thresholds of Significance

For the purposes of this project, a cultural resource impact is considered significant if the project will:

- cause a substantial adverse change in the significance of a historic resource as defined in §15064.5 of the CEQA Guidelines; or
- cause damage to an important archaeological resource as defined in §15064.5 of the CEQA Guidelines; or
- disturb any human remains, including those interred outside of formal cemeteries; or
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Archaeological Resource Impacts

There is the potential for subsurface cultural resources to exist on the hillside along the creeks and adjacent to the existing residence. There were no above ground cultural resources identified on the project site prior to its grading. Most of the project site has been graded and covered with fill. Mitigation measures identified elsewhere in this EIR identify the need to remove turf placed adjacent to the creeks, and to grade the golf course to promote surface drainage away from the creek channels. To the extent that the past construction included fill, reconfiguring the drainage adjacent to the creeks will not disturb subsurface resources.

? **The proposed project will not result in the future disturbance of cultural resources. (Less Than Significant Impact)**

Conclusion: There are no above ground cultural resources on the project site. Proposed future grading activities on the site will not expose native soils on the site. The proposed project will not result in impacts to potentially buried historic/archaeological resources. **(Less Than Significant Impact)**

K. ENERGY

This section was prepared pursuant to CEQA Guidelines Section 15126.4(c), which requires that EIRs include a discussion of the appropriate mitigation for reducing energy impacts.

Most of the construction for the proposed project has been completed, and therefore, the small amount of construction remaining will require a small amount of energy. The continued operation of the golf course, the demolition of the existing restaurant building and construction of the headquarters of the American Institute of Mathematics in its place, and the renovation of the existing buildings on the site will result in the ongoing consumption of energy. The operation of the proposed golf course will, however, use less energy than a typical golf course. Unlike most golf courses, players on the proposed golf course will not use electric golf carts, play on the golf course will be limited to 36 rounds per day, and the golf course will be closed from October 1st to April 15th.

? **The continued operation of the golf course and proposed use of the existing buildings on the site will not require a substantial amount of energy. (Less Than Significant Impact)**

Conclusion: The proposed project will contribute incrementally to the ongoing use of energy. **(Less Than Significant Impact)**

L. UTILITIES

1. Existing Setting

Sanitary Sewer Service

Sanitary sewer service for the project site is provided by the City of Morgan Hill, and consists of an eight inch sanitary sewer line along Foothill Avenue. The existing line was extended to the site in the past for the purpose of serving the existing 58,946 square foot restaurant building on the site.

Storm Water Service

Please refer to **Section II., D., Hydrology**, of this EIR for a detailed discussion about the existing storm water collection and drainage of the project site.

Water Service

Please refer to **Section II., E., Water Supply**, of this EIR for a detailed discussion about the existing water supply for the project site.

Electric and Gas Service

Electricity and natural gas is provided to the project area by Pacific Gas and Electric (PG&E). The existing PG&E infrastructure will be able to accommodate the demand of the proposed project.

Solid Waste

Solid waste service in Morgan Hill is provided by South Valley Disposal and Recycling under a franchise agreement with the City. Service includes the collection of solid waste and recycling. The service is supported by user fees. South Valley Disposal and Recycling is currently serving the existing golf course and on-site residence, and has the capacity to accommodate the solid waste by the proposed project¹⁷. Solid waste is collected and transported to a transfer station in San Martin, where it is compacted and trucked to the Pacheco Pass Landfill. It is estimated that this landfill will reach capacity by the year 2004. Once full, garbage from Morgan Hill will be diverted to another landfill. Possible alternative landfills include Crazy Horse Canyon in Salinas or Kirby Canyon Landfill in San Jose¹⁸. Santa Clara County has within its boundaries sufficient landfill capacity to serve the City of Morgan Hill¹⁹.

Grass clippings from the existing golf course are currently being disposed of on the site.

¹⁷ Phone conversation with Steve Lucchetti, Operations Manager, South Valley Disposal and Recycling, August 29, 2001.

¹⁸ Phone conversation with Dave Schmetzer, Landfill Manager, of the Pacheco Pass Landfill, March 28, 2001.

¹⁹ Conversation with Richard Gertman, Environmental Planning Consultants, April 2, 2001.

Telephone Service

Telephone service is currently provided to the project site. The project will increase the demand for telephone service on the site, however, the expansion of telephone lines is not required by the project.

2. Utilities Impacts

Thresholds of Significance

For the purposes of this project, a utilities impact is considered significant if the project will:

- require or result in the construction of a new storm water or wastewater facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or
- result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments; or
- need new or expanded entitlements for water supplies; or
- be served by a landfill with insufficient permitted capacity.

Sanitary Sewer Service

The golf course will be open from April 16th to September 30th and play on the golf course will be limited to a maximum of 36 rounds of golf per day. Thus, the golf course use is not expected to generate large amounts of sewage. The existing sewage line previously served the 58,946 square foot restaurant building on the site during its use as a restaurant; therefore, it is presumed to have capacity for the proposed Mathematics Institute.

Electric and Gas Service

Existing electricity and gas service facilities adjacent to the project site area are available and adequate to serve the proposed project.

Solid Waste Service

The solid waste generated by the existing golf course and proposed Mathematics Institute will not result in a significant impact on the City's limited remaining landfill capacity.

Telephone Service

Existing communication facilities in the project site area are available and adequate to serve the proposed project.

? The continued operation of the golf course and proposed use of the existing buildings on the project site will not result in significant impacts to utilities. (Less Than Significant Impact)

Conclusion: The development of the proposed project will not result in significant utilities impacts. **(Less Than Significant Impact)**

M. PUBLIC SERVICES

Unlike utilities, public services are provided to the community as a whole, usually from a central location or from a defined set of nodes. The resource base for delivery of the services, including the physical service delivery mechanisms, are financed on a community-wide basis, usually from a unified or integrated financial system. Usually new development will create an incremental increase in the demand for these services; the amount of the demand will vary widely, depending on both the nature of the development (residential vs. industrial, for instance) and the type of service, as well as on the specific characteristics of the development (such as senior housing vs. family housing). The impacts of a particular project on public services will, therefore, generally be a fiscal impact. By increasing the demand for a service, a project could potentially cause an eventual increase in the cost of providing the service. CEQA does not require an analysis of fiscal impacts.

CEQA analysis is required if the increased demand will trigger the need for a new facility (such as a school or fire station), since the new facility will have a physical impact on the environment.

Fire Protection

Fire protection to the project site is provided by the Santa Clara County Fire Department (SCCFD) and the California Department of Forestry (CDF). Station 13 of the SCCFD, located at 2100 East Dunne Avenue, will be the first station to respond to the project site in the event of a fire. The response time for Station 13 will be five and one-half minutes. Station 1 of the CDF, located at 15670 Monterey Road will be the second station to respond to the project site in the event of a fire. The response time for Station 1 will be six to seven minutes. Station 12 of the SCCFD, located at 18300 Old Monterey Road, will be the third station to respond to the project site in the event of a fire. The response time for station 12 will be at least eight minutes.

The first due response time meets the Santa Clara County Fire Department's response goal of five and one-half minutes or less. The proposed project will not require the development of new fire protection facilities¹⁶.

Please refer to **Section II., E., Water Supply**, of this EIR for a detailed discussion about fire water supply for the project site.

Police Protection

Police protection services are provided to the project site by the City of Morgan Hill Police Department. The Police Department employs 32 sworn officers. The City is divided into two sectors that are each patrolled by two to three officers. The proposed project will not require the construction of a new facility.

? **The development of the proposed project will not result in the need for additional fire protection or police facilities. (Less Than Significant Impact)**

Conclusion: The development of the proposed project will not result in significant public services impacts. **(Less Than Significant Impact)**

¹⁶ Phone conversation with Wayne Hokanson, Deputy Fire Marshall II, May 16, 2001.